

DEADLY TRADE:
RHINO HORNS

NEW MUSEUM SHOWCASES
AFRICAN AMERICAN LIVES

CHANGING FACE
OF EUROPE

OCTOBER 2016

NATIONAL GEOGRAPHIC

BACK TO NATURE

The Selfie Generation Gets Outside





Egyptian Vulture (*Neophron percnopterus*)

Size: Head to tail length, 54 - 70 cm (21 - 28 inches); wingspan, 145 - 175 cm (57 - 69 inches) **Weight:** 1.6 - 2.4 kg (3.5 - 5.3 lb) **Habitat:** Arid regions, such as steppes, desert, scrub, pastures and cereal fields **Surviving number:** Estimated at 20,000 - 60,000



Photographed by Markus Varesvuo

WILDLIFE AS CANON SEES IT

Rock star. The Egyptian vulture is famed for the ingenious way it cracks open tough ostrich eggs: by launching rocks at them. Eggs are just one of the many items on the menu for this opportunistic scavenger and occasional predator. It can spot a potential meal from over half a mile away, and will even eat scraps rejected by other scavengers. But it can't stomach poisoning,

poaching, human persecution and electrocution on non-insulated power lines, all of which are decimating populations of this rare tool-using bird.

As Canon sees it, images have the power to raise awareness of the threats facing endangered species and the natural environment, helping us make the world a better place.



EOS System

Canon

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Unplugging the Selfie Generation

A father and son find the rewards and challenges of getting young people to visit national parks.

*By Timothy Egan with Casey Egan
Photographs by Corey Arnold*

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Deadly Trade

What happens to rhinos if an alleged trafficker and a rancher undo South Africa's ban on selling horns?

*By Bryan Christy
Photographs by Brent Stirton*

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The New Europeans

The continent's latest great migration is roiling its politics, testing its tolerance, and challenging its cultural identities.

*By Robert Kunzig
Photographs by Robin Hammond*

140 Proof | Snow Monkeys

The personalities of Japanese macaques emerge as they warm up in hot water.

Story and Photographs by Jasper Doest

On the Cover In the age of selfie sticks and Instagram, young people like these visitors to Glacier National Park experience nature in a new way.
Photo by Corey Arnold

Corrections and Clarifications Go to ngm.com/corrections.

116 I, Too, Am America

The newest Smithsonian museum takes an unflinching look at African-American history.

By Michele Norris Photographs by Grant Cornett and Radcliffe Roye



Louis Armstrong's trumpet, made especially for him in France after World War II, is in the new museum's collection.

PHOTO: GRANT CORNETT

Beyond the Magazine

Your guide to National Geographic TV programs, online exclusives, videos, books, and more



A male mountain gorilla gazes past a bank of green in Rwanda's Volcanoes National Park. The species' remaining populations and habitats are gravely endangered.

TELEVISION

Mountain Gorilla: Mission Critical

A two-part documentary shows the fragile world of these imperiled animals, the forces threatening them, and the vets, rangers, and conservationists trying to save them. *Premiering on Nat Geo WILD Sunday night October 9 at 9/8c and 10/9c*

TELEVISION

See Cuba With Nat Geo Mundo

In *La Cuba de Hoy*, Cuban-American wildlife scientist Mireya Mayor takes an emotional trip to her ancestral homeland.

Sundays October 2 and 9 at 8/7c

TELEVISION

StarTalk Explains It All

The science of zombies, time travel, extreme stunts—Neil deGrasse Tyson discusses that and more with celebrity guests.

Mondays at 11/10c starting September 19

NAT GEO KIDS

Welcome, *Weird but True TV!*

One of the most popular series in our *Kids* magazines and books, *Weird but True* joins a Saturday lineup of educational and fun TV. Starting in September; check local listings

NATGEO.COM VIDEO

Hear the voices of the “new” Europe—and the old

From recent refugees to long-assimilated immigrants and everyone in between, settlers in Europe tell their stories. See the videos at ngm.com/Oct2016.

NATGEO.COM VIDEO

See the African-American experience on film

The new National Museum of African American History and Culture houses a rich archive of film clips and videos. See a sampling at ngm.com/Oct2016.



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FROM THE EDITOR

Refugees in Europe

Yearning for Home

Amid talk in the United States about building walls and deporting millions of undocumented immigrants, refugees keep streaming into Europe.

We see the pictures. A dead child washed up on a Turkish beach. Desperate people—most from the Middle East and Africa—adrift in European towns, warehoused in refugee camps, crowding train stations. In this magazine and on our website, photographs document the chaos as thousands flee civil war and ISIS in Syria to an unknown future elsewhere.

We study the numbers: Last year Germany took in 1.1 million refugees—many of them from Syria. To put that in context with its population of roughly 82 million, it would be as if 4.5 million refugees, in one year, entered the United States. (In fact, 70,000 refugees from all over the world legally came to America last year, including 2,192 Syrians.)

We know less about what happens to these people once they settle in a new place. How do they adapt? How are they accepted? We sent writer Rob Kunzig, an American who grew up in Europe, and photographer Robin Hammond, a New Zealander who lives in France, to find out. Each takes a different angle in our story, “The New Europeans.”

Kunzig tells the story from the German perspective. “Three-quarters of a century ago,” he writes, “Germans were dispatching trains full of Jews to concentration camps... Can Germans really grow out of their heavy past to become a *Willkommenskultur*—a culture that welcomes others?” Hammond visits several nations to chronicle successive waves of immigrants and refugees: Pakistanis and Indians in Britain, Algerians in France, Somalis in Sweden, Syrians and Turks in Germany. You can see his haunting video interviews at ngm.com/Oct2016.

From many migrants, Hammond hears poignant refrains. Some are hopeful—“I came to Sweden to find peace, which is not in my country,” one young Somali man says—and others mournful. “The homeland is precious,” says a tearful, elderly Syrian man living in Germany. “We are doing fine here, and we were well received,” he says—but still, “we want to go back.”

Thank you for reading *National Geographic*.



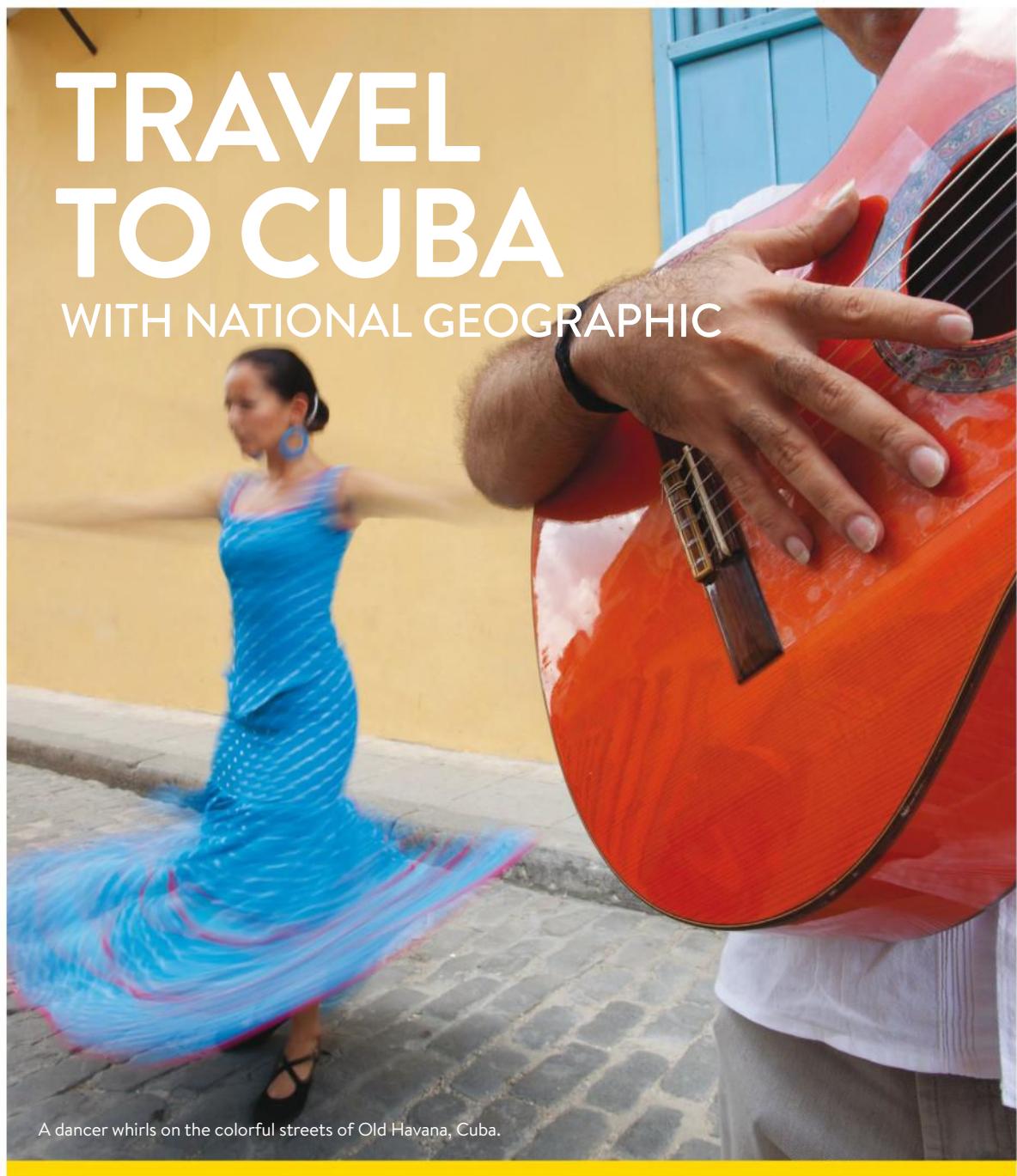
Susan Goldberg, *Editor in Chief*



Damascus-born
Mariam Zaza,
55, and her son
fled to Germany
in fall 2015; her
two daughters
are still in Syria.

TRAVEL TO CUBA

WITH NATIONAL GEOGRAPHIC



A dancer whirls on the colorful streets of Old Havana, Cuba.

Experience Cuban culture in the most authentic way possible—through its people—with National Geographic experts leading the way. Our classic people-to-people program takes you from Old Havana to historic Trinidad, where you'll meet with Cubans from all walks of life and experience this fast-changing island nation through their eyes. Or take to the Caribbean on our new Cuba by Land and Sea expedition, which combines cultural encounters in Havana with a seven-night voyage accompanied by local conservationists to the pristine marine habitats along the southern coast.

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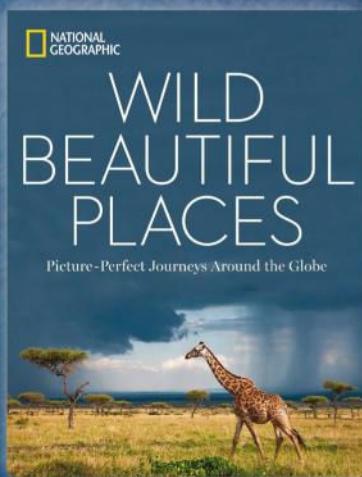
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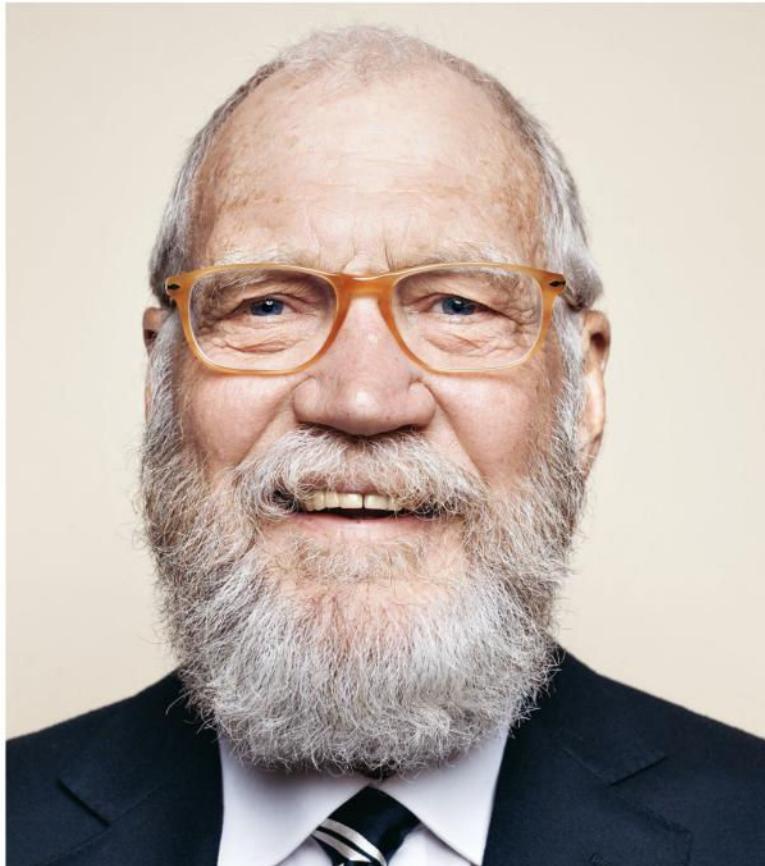
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3 Questions

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Why I Started Acting on Climate Change

After his 33-year run as a late-night television host, **David Letterman**, 69, wanted to try something new. The comedian now brings his curiosity and humor to the second season of *Years of Living Dangerously*, a National Geographic Channel series on the impacts of—and solutions to—climate change. For the show he traveled to India, population 1.3 billion, to learn about the world's energy future.

Watch season two of *Years of Living Dangerously*, beginning October 30 on the National Geographic Channel.

You and climate change—what's the connection?

Well, for years I thought I didn't want to influence people on matters of conscience. I'm not that smart. But then a few years ago someone uttered what has become the cliché in regard to climate change, and that is: What will we tell our children when they say, "Why didn't you do anything about this?" I bought that—hook, line, and sinker. That's the headline for me to start paying attention and start, in small ways, to do something. People are

being displaced. People's ways of life are changing. The questions of adaptability are enormous.

You went to report in India. What was that like?

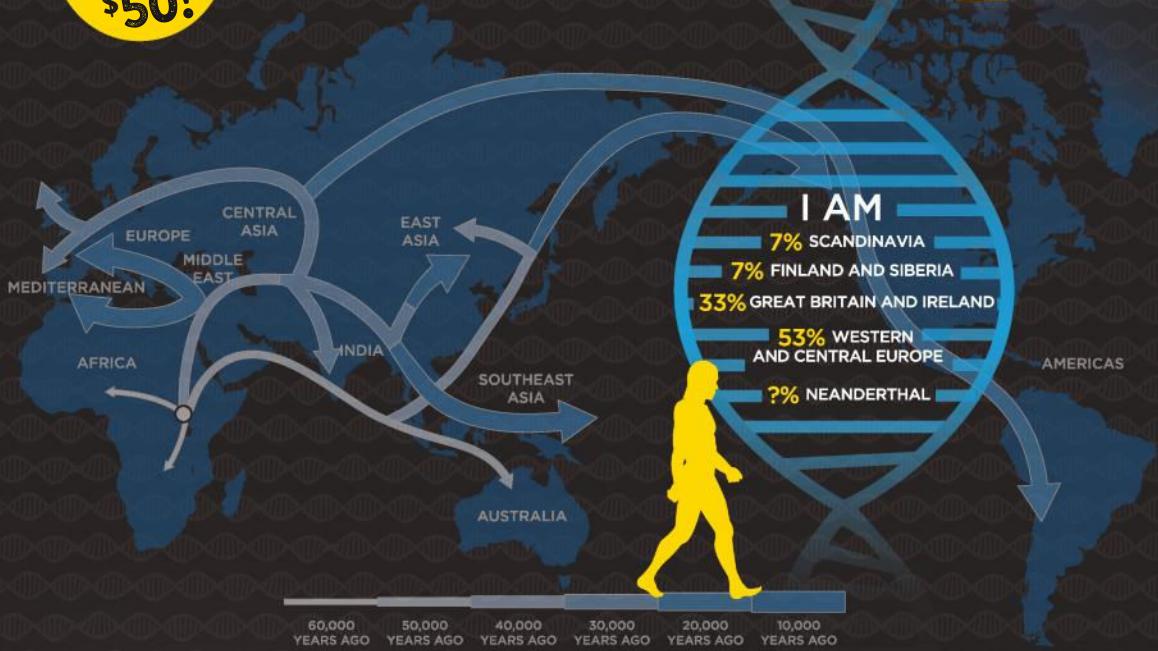
Everything surprised me. It was jaw-dropping. I look at 1.3 billion people and say, "Well, that's the problem"—and they look at it as the solution. It's a population that's quite young, and they see that as a huge resource. Honestly I've never seen poverty like [I saw there]. I saw people living in thatched huts and mud homes, breathing coal and kerosene fumes. Because I've been lucky in my life, I've come to this observation—and I'm embarrassed to say this—late in my life. I feel like these people did me a tremendous favor.

Was there any part of the trip you found funny?

First of all, when you talk about me, you have to put "comedy" in air quotes. It's difficult to be funny when you're sitting on the floor of a mud hut. But talking to kids on the floor of a mud hut is the same as talking to kids in tiny chairs in a kindergarten. They're kids, they giggle, they have funny things to say, even through a translator. Regardless of the surroundings and their condition, I felt really comfortable talking to these kids, because there's nothing more fun than goofing with kids. That's something universal.

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VISIONS





United States

Above an abandoned house near Denton, Nebraska, a bruised summer sky crackles with atmospheric electricity. The phenomenon in this composite image—four shots taken within 20 minutes—is often called cloud-to-cloud lightning.

PHOTO: ERIK JOHNSON

A dramatic photograph capturing a red fox in mid-climb up the trunk of a large, half-fallen Douglas fir tree. The scene is set in a dense, misty forest at dusk or dawn, with thick, swirling mist filling the background and partially obscuring the sky. The tree's branches are silhouetted against the light, creating a complex web of dark lines. The fox, with its reddish-brown fur and bushy tail, is positioned on the right side of the frame, moving upwards towards the top of the tree. Its body is angled, showing its agility as it navigates the vertical trunk.

Germany

As mist haunts the Black Forest, a sure-footed red fox makes its way up the trunk of a half-fallen Douglas fir tree. This resourceful species, found across the Northern Hemisphere, is a symbol of cunning in many cultures and mythologies.

PHOTO: KLAUS ECHLE, NATURE PICTURE LIBRARY





England

In a scene Dalí might have dreamed, rose-ringed parakeets flap to a roost in London's Hither Green Cemetery. Thousands of the wild birds—a non-native species of debatable origin—live in the city. The trails appear via flash and long exposure.

PHOTO: SAM HOBSON, NATURE PICTURE LIBRARY

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If you have type 2 diabetes



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Katherine

JEWELRY DESIGNER
WITH TYPE 2 DIABETES



Indication and Limitations of Use

Trulicity is a once-weekly injectable prescription medicine to improve blood sugar (glucose) in adults with type 2 diabetes mellitus. It should be used along with diet and exercise. Trulicity is not recommended as the first medication to treat diabetes. It has not been studied in people who have had inflammation of the pancreas (pancreatitis). Trulicity should not be used by people with a history of severe gastrointestinal (GI) disease, people with type 1 diabetes, or people with diabetic ketoacidosis. It is not a substitute for insulin. It has not been studied with long-acting insulin or in children under 18 years of age.

Important Safety Information

Tell your healthcare provider if you get a lump or swelling in your neck, have hoarseness, trouble swallowing, or shortness of breath while taking Trulicity. These may be symptoms of thyroid cancer. In studies with rats or mice, Trulicity and medicines that work like Trulicity caused thyroid tumors, including thyroid cancer. It is not known if Trulicity will cause thyroid tumors or a type of thyroid cancer called medullary thyroid carcinoma (MTC) in people. **Do not take Trulicity if you or any of your family members have ever had MTC or if you have Multiple Endocrine Neoplasia syndrome type 2 (MEN 2).**

Do not take Trulicity if you have had an allergic reaction to dulaglutide or any of the other ingredients in Trulicity.

Trulicity may cause serious side effects, including:

- Inflammation of your pancreas (pancreatitis).** If you have pain in your stomach area (abdomen) that is severe and will not go away, stop taking Trulicity and call your healthcare provider right away. The pain may happen with or without vomiting. It may be felt going from your abdomen through to your back.
- Low blood sugar (hypoglycemia).** If you are using another medicine that can cause low blood sugar (such as insulin or a sulfonylurea) while taking Trulicity, your risk for getting low blood sugar (hypoglycemia) may be higher. Signs and symptoms of low blood sugar may include dizziness, blurred vision, anxiety, irritability, mood changes, sweating, slurred speech, hunger, confusion or drowsiness, shakiness, weakness, headache, fast heartbeat, or feeling jittery. Talk to your healthcare provider about low blood sugar and how to manage it.
- Serious allergic reactions.** Stop taking Trulicity and get medical help right away if you have symptoms of a serious allergic reaction, such as itching, rash, or difficulty breathing.
- Kidney problems (kidney failure).** In people who have kidney problems, diarrhea, nausea, and vomiting may cause a loss of fluids (dehydration). This may cause kidney problems to get worse.
- Severe stomach problems.** Trulicity may cause stomach problems, which could be severe.

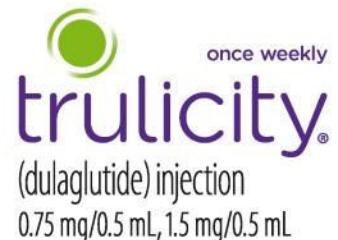
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Katherine uses what's inside her to reach her goals. For her art, she uses her passion. For her diabetes, she helps her body release its own insulin.

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- You may lose a little weight*

*Trulicity is not a weight loss drug. In studies, people who lost weight lost 2-6 lbs on average.



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Lilly pays up to \$150/month. People who can receive governmental reimbursement are not eligible. Other terms and conditions apply.

Tell your healthcare provider if you:

- have or have had problems with your pancreas, kidneys, or liver.
- have severe problems with your stomach, such as slowed emptying of your stomach (gastroparesis) or problems with digesting food.
- have any other medical conditions.
- are pregnant or plan to become pregnant, or if you become pregnant while taking Trulicity. It is not known if Trulicity will harm your unborn baby.
- are breastfeeding or plan to breastfeed. It is not known if Trulicity passes into your breast milk. You should not use Trulicity while breastfeeding without first talking to your healthcare provider.
- are taking other medicines including prescription and over-the-counter medicines, vitamins, and herbal supplements. Trulicity may affect the way some medicines work and some medicines may affect the way Trulicity works.
- are taking other medicines to treat diabetes, including insulin or sulfonylureas.

The most common side effects with Trulicity may include: nausea, diarrhea, vomiting, decreased appetite, and indigestion. Talk to your healthcare provider about any side effect that bothers you or does not go away. These are not all the possible side effects of Trulicity. Call your doctor for medical advice about side effects.

You are encouraged to report side effects of prescription drugs to the FDA. Visit www.fda.gov/medwatch or call 1-800-FDA-1088.

Please see next page for additional information about Trulicity, including Boxed Warning regarding possible thyroid tumors including thyroid cancer.

Please see Instructions for Use included with the pen.

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Information for Patients about Trulicity (dulaglutide):

This is a brief summary of important information about Trulicity (Trū-li-si-tee). Please read the Medication Guide that comes with Trulicity before you start taking it and each time you get a refill because there may be new information. This information is not meant to take the place of talking with your healthcare provider or pharmacist.

What is Trulicity?

Trulicity is a once-weekly, injectable prescription medicine that may improve blood sugar (glucose) in adults with type 2 diabetes mellitus, and should be used along with diet and exercise.

- It is not recommended as the first choice of medicine for treating diabetes.
- It is not known if it can be used in people who have had pancreatitis.
- It is not a substitute for insulin and is not for use in people with type 1 diabetes or people with diabetic ketoacidosis.
- It is not recommended for use in people with severe stomach or intestinal problems.
- It is not known if it can be used with long-acting insulin or if it is safe and effective for use in children under 18 years of age.

What is the most important information I should know about Trulicity?

Trulicity may cause serious side effects including possible thyroid tumors, including cancer. Tell your healthcare provider if you get a lump or swelling in your neck, hoarseness, trouble swallowing, or shortness of breath. These may be symptoms of thyroid cancer. In studies with rats or mice, Trulicity and medicines that work like Trulicity caused thyroid tumors, including thyroid cancer. It is not known if TRULICITY will cause thyroid tumors or a type of thyroid cancer called medullary thyroid carcinoma (MTC) in people.

Who should not use Trulicity?

Do not use Trulicity if:

- you or any of your family have ever had a type of thyroid cancer called medullary thyroid carcinoma (MTC) or if you have an endocrine system condition called Multiple Endocrine Neoplasia syndrome type 2 (MEN 2).
- you are allergic to dulaglutide or any of the ingredients in Trulicity.

What are the possible side effects of Trulicity?

Trulicity may cause serious side effects, including:

- **Possible thyroid tumors, including cancer.** See "What is the most important information I should know about Trulicity?"
- **Inflammation of the pancreas (pancreatitis).** Stop using Trulicity and call your healthcare provider right away if you have severe pain in your stomach area (abdomen) that will not go away, with or without vomiting. You may feel the pain from your abdomen to your back.
- **low blood sugar (hypoglycemia).** Your risk for getting low blood sugar may be higher if you use Trulicity with another medicine that can cause low blood sugar such as sulfonylurea or insulin.

Signs and symptoms of low blood sugar may include: dizziness or light-headedness; blurred vision; anxiety; irritability; or mood changes; sweating; slurred speech; hunger; confusion or drowsiness; shakiness; weakness; headache; fast heartbeat; feeling jittery.

- **serious allergic reactions.** Stop using Trulicity and get medical help right away, if you have any symptoms of a serious allergic reaction including itching, rash, or difficulty breathing.
- **kidney problems (kidney failure).** In people who have kidney problems, diarrhea, nausea, and vomiting may cause a loss of fluids (dehydration) which may cause kidney problems to get worse.
- **severe stomach problems.** Other medicines like Trulicity may cause severe stomach problems. It is not known if Trulicity causes or worsens stomach problems.

The most common side effects of Trulicity may include nausea, diarrhea, vomiting, decreased appetite, indigestion.

Talk to your healthcare provider about any side effect that bothers you or does not go away. These are not all the side effects of Trulicity.

Call your doctor for medical advice about side effects. You may report side effects to FDA at 1-800-FDA-1088.

Trulicity (dulaglutide)

Before using Trulicity tell your healthcare provider if you:

- have had problems with your pancreas, kidneys, or liver.
- have severe problems with your stomach, such as slowed emptying of your stomach (gastroparesis) or problems digesting food.
- have any other medical conditions.
- are pregnant or plan to become pregnant, or if you become pregnant while taking Trulicity. It is not known if Trulicity will harm your unborn baby.
- are breastfeeding or plan to breastfeed. It is not known if Trulicity passes into your breast milk. You should not use Trulicity while breastfeeding without first talking to your healthcare provider.
- are taking other medicines—including prescription and over-the-counter medicines, vitamins, and herbal supplements. Trulicity may affect the way some medicines work and some medicines may affect the way Trulicity works.
- are taking other medicines to treat your diabetes including insulin or sulfonylureas.

Before using Trulicity, talk to your healthcare provider about low blood sugar and how to manage it.

How should I use Trulicity?

- Read the Instructions for Use that comes with Trulicity.
- Use Trulicity exactly as your healthcare provider tells you to.
- Your healthcare provider should show you how to use Trulicity before you use it for the first time.
- Trulicity is injected under the skin (subcutaneously) of your stomach (abdomen), thigh, or upper arm. **Do not** inject Trulicity into a muscle (intramuscularly) or vein (intravenously).
- **Use Trulicity 1 time each week on the same day each week at any time of the day.**
- You may change the day of the week as long as your last dose was given 3 or more days before.
- If you miss a dose of Trulicity, take the missed dose as soon as possible, if there are at least 3 days (72 hours) until your next scheduled dose. If there are less than 3 days remaining, skip the missed dose and take your next dose on the regularly scheduled day. **Do not** take 2 doses of Trulicity within 3 days of each other.
- Trulicity may be taken with or without food.
- **Do not** mix Trulicity and insulin together in the same injection.
- You may give an injection of Trulicity and insulin in the same body area (such as your stomach), but not right next to each other.
- Change (rotate) your injection site with each weekly injection. **Do not** use the same site for each injection.

Do not share your Trulicity pen, syringe, or needles with another person. You may give another person an infection or get an infection from them.

Your dose of Trulicity and other diabetes medicines may need to change because of:

- change in level of physical activity or exercise, weight gain or loss, increased stress, illness, change in diet, or because of other medicines you take.

For more information go to www.Trulicity.com or call 1-800-LillyRx (1-800-545-5979).

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DG CON BS 01MAY2015

Trulicity (dulaglutide)

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VISIONS

YourShot.ngm.com

Photos Get Physical

Assignment How often do people print photos these days? We asked readers to start with a physical image to create something tangible.



Ivan Lesica
Queens, New York

Lesica started with an old portrait he took of a mannequin. He printed the photo, and then, in his kitchen, he dipped a piece of coral in soapy water and held it in front of the lens to distort the view of the portrait. "I love photography that is unusual, original, and mysterious," he says. "I fell in love with this image."



Tap Twice to Like

More than 55 million people follow the @natgeo photo feed on Instagram, a collection that offers daily—sometimes hourly—opportunities to be transported and informed.

No one person curates the account. The password is shared among a hundred or so National Geographic photographers, who are encouraged to post from wherever they are when they have an image worth sharing. A new book, @NatGeo, presents 255 of the most popular images, as selected by Instagram users and National Geographic's photo editors.

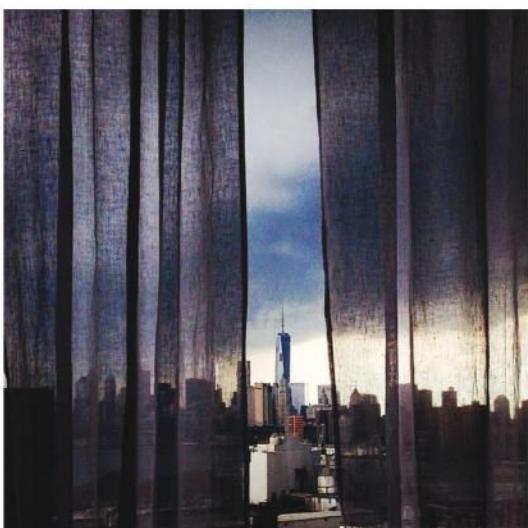
The book @NatGeo is available at shopng.com/natgeobook or wherever books are sold.



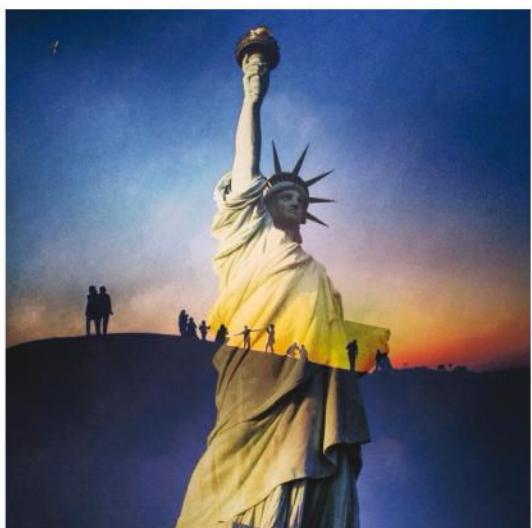
@COREYRICHPRODUCTIONS A climber leaves the suspended camp on the Dawn Wall of Yosemite's El Capitan.



@KENGIEIGER An inviting hammock flutters over knee-deep jade waters off Isla Holbox, Mexico.



@DAVIDALANHARVEY Drapes frame Freedom Tower, formerly known as One World Trade Center, in Lower Manhattan.



@EDKASHI A mash-up of iPhone shots, made with @laura_eltantawy, mixes the Statue of Liberty with Middle East sand.

Your dog shares the spirit of the wolf. And his love for meat.

A large Airedale Terrier stands in the foreground, looking towards the right. In the background, a wolf is captured mid-howl, its head tilted back. The scene is set outdoors with trees and rocks.

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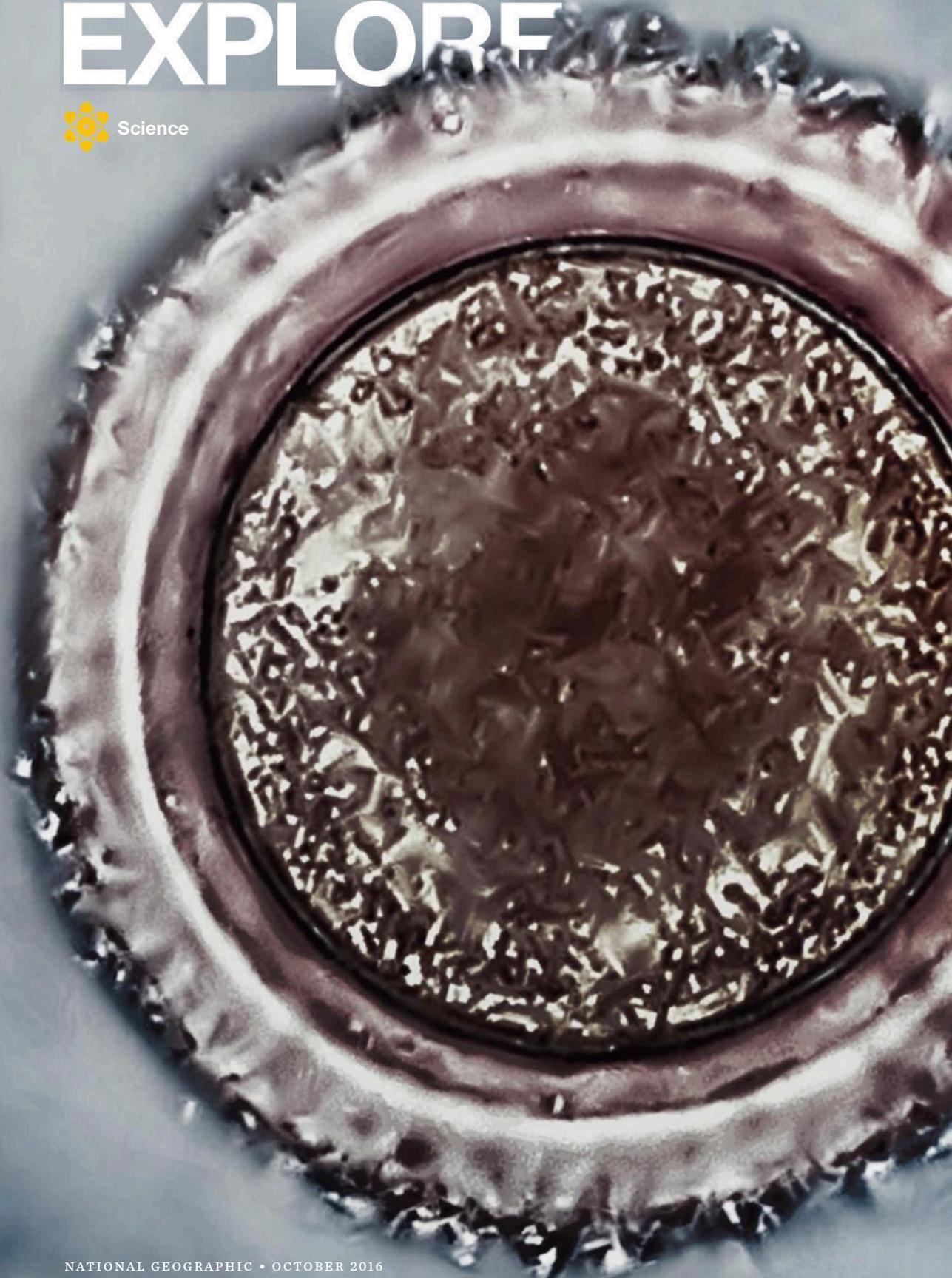
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EXPLORE



Science





Speedy Delivery

A remedy for infertility may be coming in bot form. Millions of couples struggle to have children, and the common causes of infertility mostly afflict women—poor egg quality, for instance, and conditions like endometriosis (a disorder of the uterus), as well as age. But roughly 20 percent of documented cases are classified as solely “male factor,” meaning the root of the problem stems from sperm that are low in number, abnormally formed, or sluggish swimmers.

Enter “spermbot,” a tiny, corkscrew-shaped motor designed to drive lethargic sperm to their target. Magnetically controlled, it works by first wrapping around the sperm’s tail, then propelling it toward—and, ideally, into—an egg. (This happens in the privacy of a medical clinic, not the bedroom.) Developed by a team of scientists in Germany, the motor could one day play a role in artificial insemination.

So far spermbot has been tested on bovine sperm and eggs (pictured) and hasn’t yet achieved successful fertilization. “It’s a fascinating concept,” says Robin Fogle, a reproductive endocrinologist and researcher at the Atlanta Center for Reproductive Medicine, “but I admit I’m a skeptic.”

Study leader and spermbot engineer Oliver Schmidt acknowledges that the motor is somewhat inefficient and that more work needs to be done before it’s ready for human trials. Still, with further refining, he says, spermbot could make having a baby possible for couples diagnosed with infertility, particularly in situations “where other more established techniques have failed.” —Catherine Zuckerman



EXPLORE
Ancient Worlds

Echoes of Pompeii Found in France

Vibrant scenes that decorated a mansion more than 2,000 years ago are turning up at a Roman-era site in the southern French city of Arles, astounding the archaeologists who have been working there since 2014.

Patches of painted plaster still cling to the masonry walls of a bedroom and reception hall, which are preserved in places to a height of more than three feet. In addition, thousands of fragments that fell off the walls have been recovered from the excavated earth. Reassembled images include figures never before seen in France, such as this woman playing a stringed instrument (right), possibly a character from mythology.

The paintings are so masterfully executed, with such expensive pigments, that experts believe the artists originally came from Italy and were hired by one of the city's elite. Perhaps a Roman official wanted Pompeii-like decor to remind him of home while he was stationed in this provincial trading port, founded in 46 B.C. as a colony for veterans of the Roman legion. Or a wealthy local wanted to show off his worldly sophistication. The frescoes may yield even more stunning surprises as additional sections are pieced together like puzzles. —A. R. Williams



ALFRED THE GREAT'S CHANGING STORY

Silver coins found by a metal detectorist in an Oxfordshire field are rewriting the history of England. According to British Museum expert Gareth Williams, one of the figures at the center of each coin (example at left) is Alfred the Great, the Anglo-Saxon king of Wessex. Contemporary accounts say that Alfred defeated the Viking invaders in 878, paving the way for England's unification. But the other figure is Ceolwulf II, king of Mercia, who must have been Alfred's ally in this campaign. Alfred likely erased him from the record after their coalition collapsed. —ARW

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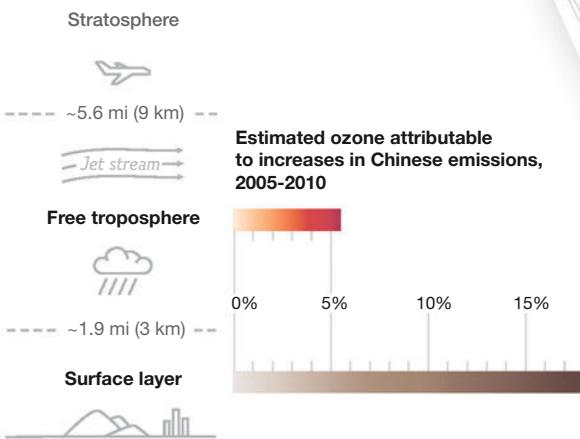


Pollution on the Move

Pollution always starts locally, but it quickly becomes everybody's problem, irrespective of treaties, national borders, or oceans. Just how quickly—and how far—does it spread? Researchers in the Netherlands and the United States tracked the path of ozone from a major source—China, the world's biggest greenhouse gas emitter. Using satellite imagery, the scientists discovered that China's ozone traveled across the Pacific Ocean to the West Coast of the U.S., where, from 2005 to 2010, it offset American reductions of ozone pollution by 43 percent.

The danger of pollution depends on how low it is. Most ozone (one of the easier gases to track) stays close to the surface, where too much can constrain plant growth and animal respiration. Ozone can travel farther in the free troposphere, where it acts as a greenhouse gas yet also breaks down air contaminants. Even higher, stratospheric ozone protects the planet from radiation.

China's growing economy explains its increasing pollution. But every major emitter's pollution travels (in the U.S.'s case, toward Europe). "We wanted to demonstrate the global impact of local pollution emissions and how it can interfere with measures...taken overseas," says atmospheric chemist Willem Verstraeten—or in other words, show that all emissions can have an effect elsewhere. —*Daniel Stone*



A S I A

Growth in China

China's economy more than doubled between 2005 and 2010. Emissions of nitrogen oxides, key ingredients in the creation of ozone, increased 21 percent in eastern China during that period.

CHINA

TAIWAN

30°

150°

EQUATOR

Freeway for Pollutants

The subtropical jet stream, its intensity and path varying by season, circulates air around the world. Strong winds blow Chinese pollution toward the U.S. and U.S. pollution toward Europe.

◀ FREE-TROPOSPHERIC OZONE

The burning of fossil fuels creates nitrogen oxides and carbon monoxide, which combine in the presence of sunlight to form ozone. Attempts to reduce ozone in one region can be offset by the effects of global circulation.

Reductions in the U.S.

During China's boom, American regulations led to a 21 percent reduction of nitrogen oxide emissions in the western U.S. These reductions were partly offset by transpacific pollution.

NORTH
PACIFIC OCEAN

SUBTROPICAL JET STREAM

HAWAII
(U.S.)

SURFACE LAYER OZONE ►

Local geography and atmospheric conditions dictate where surface ozone travels. Surface ozone can move, but the majority produced in China remains as smog in East Asia.

CHINA

TAIWAN

U.S.

EQUATOR

180°

150°E

180°

150°W

120°W

180°

150°E

180°

150°W

180°



EXPLORE

Field Notes

National Geographic explorers, photographers, and writers report from around the world

United States

Tracking a tornado's damage from every angle

ANTON SEIMON Atmospheric scientist

On May 31, 2013, the day the widest tornado ever recorded swept through central Oklahoma and killed 22 people, Anton Seimon was about three miles south. Several of the people killed were Seimon's colleagues, including National Geographic Explorer Tim Samaras, whose vehicle was tumbled nearly a mile by the tornado's 175-mile-an-hour gusts.

When the wind stopped, Seimon was left with his grief—and more questions than answers. Why did this storm wreak such havoc? He wanted to reconstruct how the storm destroyed everything in its path, including Samaras's truck. He began to acquire videos shot that day in hopes that, all together, they'd form a detailed portrait of the storm.

More than 125 videos later, the footage—when synchronized—shows the storm from nearly every angle. Most advances in tornado science usually center on questions of formation: how humans can predict a storm's power and path. Seimon's trove of information, which he published online and calls the Tornado Environment Display, may serve as a model to pursue a different question: How do high-speed air particles inflict damage?

He hopes that the answer, revealed frame by frame in the videos, will inspire engineering innovations, especially for construction in storm-prone areas. Studying how a roof is ripped off a trailer—the same way you'd study the mechanics of a slow-motion slam dunk—can help builders learn how to make roofs more secure. Repeatedly battered structures might



The El Reno tornado in 2013 was the widest recorded tornado in history. Anton Seimon wants to use slow-motion video and mapping to understand how storms inflict damage.

be more strongly secured to the ground. "No one should die from a tornado in this day and age," says Seimon. Although extreme storms are expected to grow in frequency and strength due to climate change, "we have the ability to know how to keep people safe." —Daniel Stone

Venezuela

When croc babies become teenagers

NICOLAS MATHEVON Biologist

Nicolas Mathevon knows what boils a crocodile's blood. In Guyana in 2007, when Mathevon played a recording of an infant croc distress call, a bellowing mama croc lunged at the boat he was in. He switched off the speaker, and the animal halted mid-attack. After 10 years of

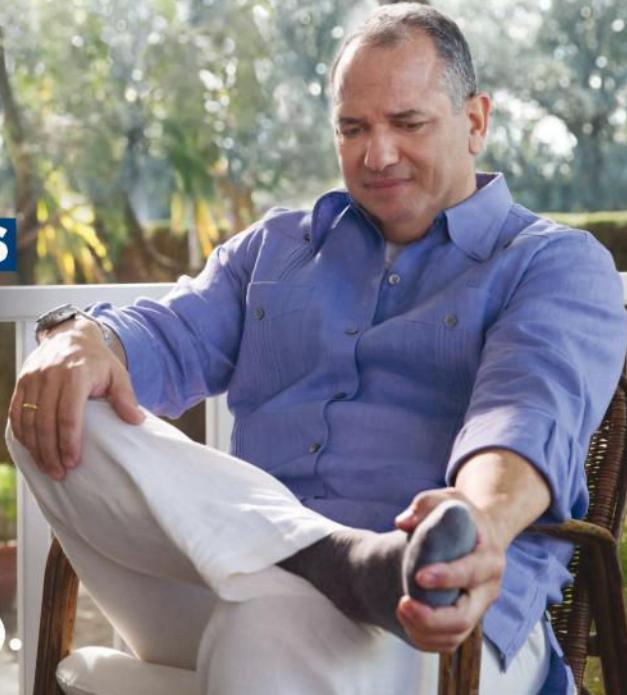


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vision or any skin sores if you have diabetes. You may have a higher chance of swelling, hives or gaining weight if you are also taking certain diabetes or high blood pressure medicines. Do not drink alcohol while taking LYRICA. You may have more dizziness and sleepiness if you take LYRICA with alcohol, narcotic pain medicines, or medicines for anxiety. If you have had a drug or alcohol problem, you may be more likely to misuse LYRICA. Tell your doctor if you are planning to father a child, if you are pregnant, or plan to become pregnant. Breastfeeding is not recommended while taking LYRICA. Talk with your doctor before you stop taking LYRICA or any other prescription medication.

Please see Important Risk Information for LYRICA on the following page.

You are encouraged to report negative side effects of prescription drugs to the FDA. Visit www.FDA.gov/medwatch or call 1-800-FDA-1088.

Ask your doctor about LYRICA and visit LYRICA.com or call 1-888-9-LYRICA (1-888-959-7422).



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FOR DIABETIC NERVE PAIN**

IMPORTANT FACTS



(LEER-i-kah)
(pregabalin)

IMPORTANT SAFETY INFORMATION ABOUT LYRICA

LYRICA may cause serious, even life threatening, allergic reactions. Stop taking LYRICA and call your doctor right away if you have any signs of a serious allergic reaction:

- Swelling of your face, mouth, lips, gums, tongue, throat or neck
- Have any trouble breathing
- Rash, hives (raised bumps) or blisters

Like other antiepileptic drugs, LYRICA may cause suicidal thoughts or actions in a very small number of people, about 1 in 500.

Call your doctor right away if you have any symptoms, especially if they are new, worse or worry you, including:

- suicidal thoughts or actions
- new or worse depression
- new or worse anxiety
- feeling agitated or restless
- panic attacks
- trouble sleeping
- new or worse irritability
- acting aggressive, being angry, or violent
- acting on dangerous impulses
- an extreme increase in activity and talking
- other unusual changes in behavior or mood

If you have suicidal thoughts or actions, do not stop LYRICA without first talking to your doctor.

LYRICA may cause swelling of your hands, legs and feet.

This swelling can be a serious problem with people with heart problems.

LYRICA may cause dizziness or sleepiness.

Do not drive a car, work with machines, or do other dangerous things until you know how LYRICA affects you. Ask your doctor when it is okay to do these things.

ABOUT LYRICA

LYRICA is a prescription medicine used in adults 18 years and older to treat:

- Pain from damaged nerves that happens with diabetes or that follows healing of shingles, or spinal cord injury
- Partial seizures when taken together with other seizure medicines
- Fibromyalgia (pain all over your body)

Who should NOT take LYRICA:

- Anyone who is allergic to anything in LYRICA

BEFORE STARTING LYRICA

Tell your doctor about all your medical conditions, including if you:

- Have had depression, mood problems or suicidal thoughts or behavior
- Have or had kidney problems or dialysis
- Have heart problems, including heart failure
- Have a bleeding problem or a low blood platelet count
- Have abused prescription medicines, street drugs or alcohol in the past
- Have ever had swelling of your face, mouth, tongue, lips, gums, neck, or throat (angioedema)
- Plan to father a child. It is not known if problems seen in animal studies can happen in humans.
- Are pregnant, plan to become pregnant. It is not known if LYRICA will harm your unborn baby. You and your doctor will decide whether you should take LYRICA.
- Are breastfeeding or plan to breastfeed. LYRICA passes into your breast milk. It is not known if LYRICA can harm your baby. Breastfeeding is not recommended while taking LYRICA.

Tell your doctor about all your medicines. Include over-the-counter medicines, vitamins, and herbal supplements.

LYRICA and other medicines may affect each other causing side effects. Especially tell your doctor if you take:

BEFORE STARTING LYRICA, continued

- Angiotensin converting enzyme (ACE) inhibitors. You may have a higher chance for swelling and hives.
- Avandia® (rosiglitazone)*, Avandamet® (rosiglitazone and metformin)* or Actos® (pioglitazone)** for diabetes. You may have a higher chance of weight gain or swelling of your hands or feet.
- Narcotic pain medicines (such as oxycodone), tranquilizers or medicines for anxiety (such as lorazepam). You may have a higher chance for dizziness and sleepiness.
- Any medicines that make you sleepy.

POSSIBLE SIDE EFFECTS OF LYRICA

LYRICA may cause serious side effects, including:

- See "Important Safety Information About LYRICA."
- Muscle problems, pain, soreness or weakness along with feeling sick and fever
- Eyesight problems including blurry vision
- Weight gain. Weight gain may affect control of diabetes and can be serious for people with heart problems.
- Feeling "high"

If you have any of these symptoms, tell your doctor right away. The most common side effects of LYRICA are:

- | | |
|-----------------|------------------------------|
| • Dizziness | • Trouble concentrating |
| • Blurry vision | • Swelling of hands and feet |
| • Weight gain | • Dry mouth |
| • Sleepiness | |

If you have diabetes, you should pay extra attention to your skin while taking LYRICA.

HOW TO TAKE LYRICA

Do:

- Take LYRICA exactly as your doctor tells you. Your doctor will tell you how much to take and when to take it. Take LYRICA at the same times each day.
- Take LYRICA with or without food.

Don't:

- Drive a car or use machines if you feel dizzy or sleepy while taking LYRICA.
- Drink alcohol or use other medicines that make you sleepy while taking LYRICA.
- Change the dose or stop LYRICA suddenly. If you stop taking LYRICA suddenly you may have headaches, nausea, diarrhea, trouble sleeping, increased sweating, or you may feel anxious. If you have epilepsy, you may have seizures more often.
- Start any new medicines without first talking to your doctor.

NEED MORE INFORMATION?

- Ask your doctor or pharmacist. This is only a brief summary of important information.
- Go to www.lyrica.com or call 1-866-459-7422 (1-866-4LYRICA).

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studying crocs' communication methods, in Venezuela and elsewhere, Mathevon says he's seen mothers react quickly to babies' signals but still know when to "spare their energy."

In translating croc chatter, Mathevon, a professor of animal behavior at the University of Lyon at St.-Étienne in France, found that the cold-blooded creatures are actually loving mothers. When babies in the egg are ready to hatch, they signal each other and their mother with an *umph, umph, umph* call. When Mathevon recorded that sound and played it back to mothers via loudspeaker, they rushed to their nests to dig out their eggs. If the recording played next to eggs, the babies—likely believing their neighboring siblings were signaling having reached full term—responded by hatching. Mathevon also discovered that after they've hatched, baby crocs can make a sound that sends their mother running to them, and he observed that Mom makes a certain call when she wants them to congregate around her. "They have

Nicolas Mathevon photographed a young spectacled caiman while recording its calls. The sounds of newborns attract mothers until they're big enough to protect themselves.



PHOTO: NICOLAS MATHEVON, NGM MAPS

a very developed social life," says Mathevon. "They're a model of interaction between mother and newborns."

As babies grow, Mathevon says, their acoustics change and their maternal relationships become more fraught. The mothers that were once so attentive no longer come running. He theorizes that they may even be "a little bit frightened" by offspring's calls. —*Nina Strochlic*

Mauritius

Planning the future on a beach at dusk

VANINA HAREL *Young Explorer grantee*

Harel reports: One day I was filming a meeting between artisanal fishers and NGO workers in a rural area in southern Mauritius. It's a remote part of the world. I should know: I grew up there.

A group of young kids were playing on the beach; when they saw my equipment, they came over to see how the camera and microphone worked. As the sun was setting, they pretended to interview each other about what they wanted to be.

One boy said he wanted to be a fisher. Another said to him, "No, there's no more fish. Working on plantations is a better choice." Neither option seemed very promising: Artisanal fishers struggle to make a living in the depleted lagoons around Mauritius, and machines are replacing sugarcane plantation jobs. The girls wanted to be like their mothers and wash clothes.

Then they put me in front of my own camera and asked me what I would do when I grew up. I told them I was making a film, *Vey Nou Lagon*, about ocean conservation. I explained that a healthy fishery would bring jobs and that there were many more job options than they imagined. I said I hoped to leave my homeland better than I found it, which was why I collected stories on film—this was *my* job. They all looked at me with amazement before throwing sand at each other and running back to the beach.



If You Worked Around Gaskets, Packing, or Equipment Containing Asbestos

The Garlock and Coltec Bankruptcy Settlement May Affect Your Rights.

There is a bankruptcy involving claims about exposure to asbestos-containing gaskets, packing, and equipment. Garlock Sealing Technologies LLC, The Anchor Packing Company, and Garrison Litigation Management Group, Ltd., along with representatives of asbestos claimants, have filed a new plan of reorganization (the “Plan”). Coltec Industries Inc is also part of the Plan. If claimants approve the Plan, Coltec will merge with a company known as OldCo, LLC, and that company will file a bankruptcy case. Together, these companies are referred to as the “Debtors.”

The gaskets and packing were used in places where steam, hot liquid, or acids moved through pipes, including industrial and maritime settings. The equipment included compressors, engines, pumps, transformers, and other equipment that may have had asbestos-containing components, such as gaskets or packing. The Coltec-related divisions or businesses that may have sold asbestos-containing products or equipment were Fairbanks Morse, Quincy Compressor, Central Moloney, Delavan, France Compressor, and Farnam.

Who Is Affected by the Bankruptcy Case?

Your rights may be affected if you:

- Worked with or around Garlock asbestos-containing gaskets or packing, Coltec equipment with asbestos components, or any other asbestos-containing product for which Debtors are responsible, or
- Have a claim now or in the future against the Debtors for asbestos-related disease caused by any person's exposure to asbestos-containing products.

Even if you have not yet been diagnosed with any disease or experienced any symptoms, your rights may be affected. The Court has appointed a Future Claimants' Representative (“FCR”) to represent the rights of these future claimants.

What Does the Plan Provide?

The Plan is the result of a settlement agreement between the Debtors, the FCR, and committees representing asbestos claimants against Garlock and Coltec (the “Asbestos Claimants Committee”). The Plan will establish a Trust funded with \$480 million to pay asbestos claims against Garlock and Coltec. **If the Plan**

is approved, all claims must be filed against the Trust. You will not be able to file claims against the Debtor or protected parties. If you have claims only against Anchor, you are not expected to recover anything, as that company has no assets and will be dissolved.

The Plan replaces a different plan that was supported by the Debtors and FCR. The Plan provides more guaranteed funding for paying asbestos claims, and also pays claims against Coltec. The Asbestos Claimants Committee opposed the previous plan, but supports the Plan.

Who Can Vote on or Object to the Plan?

All identifiable asbestos claimants or their attorneys will receive the “Solicitation Package.” This includes the Plan, Voting Ballot, and other information. You can vote on the Plan by providing certified information about your claim, or making a motion to vote as described in the Solicitation Package available online or by calling the toll-free number.

You will need to vote on the Plan by December 9, 2016. You may also object to the Plan and the adequacy of the FCR’s representation of future claimants, but must do so by December 9, 2016.

Do I Have to File a Claim?

Certain deadlines for filing asbestos claims against Garlock have already passed. **If you have an asbestos claim against Coltec based on a disease diagnosed on or before August 1, 2014, you must cast a ballot before December 9, 2016, or else file a claim by March 24, 2017.** If you do not file a claim, you may lose your right to bring your Coltec claim against the Trust in the future. Individuals diagnosed with disease after August 1, 2014 do not have to file a claim at this time, but may be able to vote or object to the Plan. In addition, if you have already filed an asbestos claim against Garlock, you do not have to file a separate Coltec asbestos claim.

When Will the Court Decide on the Plan?

A hearing to consider confirmation of the Plan will begin at 10:00 a.m. ET on May 15, 2017, at the US Bankruptcy Court, Western District of North Carolina, 401 West Trade Street, Charlotte, NC 28202.

For Information: www.GarlockNotice.com 1-844-Garlock

LEGAL NOTICE

If you were called on a cellular telephone about an account by or on behalf of Citizens Bank, N.A. ("Citizens"), formerly known as RBS Citizens Bank, N.A., you may be entitled to receive a payment. Your rights may be affected by this class action settlement.

A Settlement has been reached in a class action lawsuit, *Sanders v. RBS Citizens, N.A.*, U.S. District Court for the Southern District of California, Case No. 3:13-cv-03136 BAS (RBB) (the "Lawsuit"). Plaintiffs allege that Citizens ("Defendant") violated the Telephone Consumer Protection Act by calling cellular phone numbers using an automatic telephone dialing system or an artificial or pre-recorded voice. The Court did not decide in favor of Plaintiffs or Defendant. Defendant denies any wrongdoing, violation, or liability.

WHO IS INCLUDED? The "Settlement Class" includes all persons in the U.S. who were called on a cellular telephone by Defendant, or third parties calling on their behalf, using an automatic telephone dialing system or by artificial or pre-recorded voice message without prior express consent from December 20, 2009, through July 31, 2015. If you received a postcard in the mail, you are included in the Settlement Class. If you did not receive a postcard, go to the settlement website, www.CitizensTCPASettlement.com, or call 1-855-581-1283 to determine whether your cellular phone was called.

WHAT DOES THE SETTLEMENT PROVIDE? Defendant will provide a \$4,551,267 Settlement Fund. After deducting attorneys' fees and litigation costs, and the costs of notice and claims administration, that Settlement Fund will be divided equally among all Settlement Class Members that file approved claims.

WHAT ARE MY OPTIONS? File a claim online at www.CitizensTCPASettlement.com or by calling 1-855-581-1283 by **October 27, 2016**. If you do not want to be legally bound by this Settlement, you must exclude yourself by **November 7, 2016**. Unless you exclude yourself, you will not be able to sue the Defendant for any claim made in this lawsuit or released by the Settlement Agreement. If you do not exclude yourself, you may object and notify the Court that you or your lawyer, at your own expense, intends to appear at the Court's Fairness Hearing. Objections are due **November 7, 2016**. For more information, including "FAQs" and the Settlement Agreement, go to www.CitizensTCPASettlement.com.

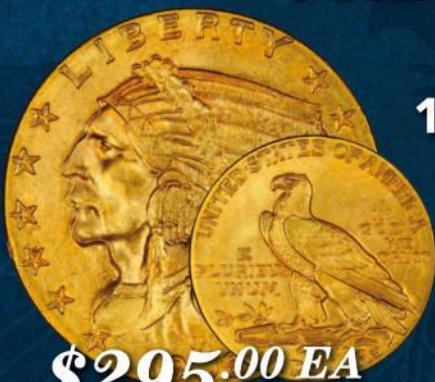
THE COURT'S FAIRNESS HEARING. The Court has scheduled a Fairness Hearing for Monday, January 23, 2017, at 10:30 a.m., at the U.S. District Court, Southern District of California, in Courtroom 4B, 221 West Broadway, San Diego, CA, 92101, to decide whether to approve: (1) the Settlement; (2) Class Counsel's request for attorneys' fees of up to 25% of the Settlement Fund (\$1,137,816.87) and litigation costs not to exceed \$25,000; (3) costs of notice and claims administration estimated to be \$629,000; and (4) an incentive payment to the Class Representative not to exceed \$5,000. Upon final approval, the action will be dismissed with prejudice and Settlement Class Members who do not request exclusion will have released Defendant and related entities as detailed in the Settlement Agreement (available at www.CitizensTCPASettlement.com).

For more information call 1-855-581-1283 or visit www.CitizensTCPASettlement.com.

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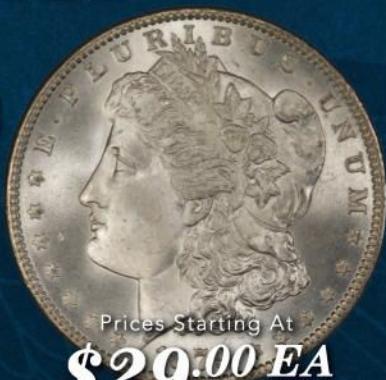
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Basic Instincts

A genteel disquisition on love and lust in the animal kingdom

Made for Each Other

Perissodactyla, roughly translated, means “odd number of toes.” It’s the order of mammals that includes rhinos (three toes), horses (one hoofed toe), and tapirs (three toes in back and four toes in front).

Extra toes are an evolutionary advantage that helps barrel-bodied tapirs with weight bearing and traction. Another adaptive trait that male rhinos, horses, and tapirs share: They’re “extremely well endowed,” says tapir expert Michele Stancer, director of animal care at Utah’s Hogle Zoo in Salt Lake City.

An aroused tapir’s manhood is so “large and ungainly,” Stancer says, “I actually have seen the male step on it and scream.” Maneuvering the organ into mating position involves many swings and misses. And yet, she says, the male “had to evolve to that size and shape to get where it needs to go” in the female’s lengthy genital tract to inseminate her. Another evolutionary adaptation: large flaps near the end of the penis that Stancer says “make a seal inside the female” so that tapirs can successfully breed underwater as well as on land.

Tapirs’ sex lives start when they’re about two years old and can last into their 20s. If all goes well in a tapir tryst, the female likely will bear a single infant (or, very rarely, twins) 13 months later. —*Patricia Edmonds*

Genus *Tapirus*

HABITAT/RANGE

Rain forest, savanna, and marsh in Asia, Central and South America, and Mexico

CONSERVATION STATUS

Three of the four tapir species—Asian, mountain, and Baird’s—are rated endangered; the lowland tapir is rated vulnerable.

NATIONAL GEOGRAPHIC

PHOTOARK
JOEL SARTORE

Known as the Asian, or Malayan, tapir, this *Tapirus indicus* male was photographed in Nebraska at Omaha’s Henry Doorly Zoo.





JOHN CIMFLI, CRATER LAKE NATIONAL PARK



JENNA SAUERS, BADLANDS NATIONAL PARK



JALEN WHITSON, ZION NATIONAL PARK



CHRIS GAY, JOSHUA TREE NATIONAL PARK



HALLY SWARINGEN, HALEAKALĀ NATIONAL PARK



JACOB CROSKEY AND ANGELA NGUYEN, GRAND TETON NATIONAL PARK



BARBI LAWSON, ZION NATIONAL PARK



ALEKSANDRA KARYCZAK, DEATH VALLEY NATIONAL PARK



RAINEY FORKNER, DEATH VALLEY NATIONAL PARK



ALLISON JOHNSON, CONGAREE NATIONAL PARK



OLIVIA BATES, GLACIER NATIONAL PARK



GREG PETLISKI, JOSHUA TREE NATIONAL PARK



TOMMY HAUGEN SOJDIS, YOSEMITE NATIONAL PARK



ANDREW WILLIS AND KENNETH GARCIA, HALEAKALĀ NATIONAL PARK



BRYAN PALACIO, EVERGLADES NATIONAL PARK



ANTHONY MAYES, GRAND TETON NATIONAL PARK



THE POWER OF PARKS
A YEARLONG EXPLORATION

UNPLUGGING THE SELFIE GENERATION

A father and son raft down the Grand Canyon and hike in Joshua Tree, revealing the challenges—and rewards—of getting young people into parks.



AUTHOR TIMOTHY EGAN AND HIS SON, CASEY, AT JOSHUA TREE NATIONAL PARK





In Wyoming, nearing the end of a 48-state road trip, Sean Vranizan leans out to get a shot in Grand Teton National Park. He and two other artist friends posted photos along the way on Instagram as @modernbaystudios.



Inspired by images on Instagram, Jonathan Farrar and Marty Castro ventured outside and discovered a love for nature and camping. They drove up the West Coast, visiting national parks, including Crater Lake in Oregon, the country's deepest lake.



*By Timothy Egan with Casey Egan
Photographs by Corey Arnold*

At Lees Ferry,

Arizona, the launch point for a raft trip down the basement of the continent, not a disheartening word is heard from those about to start a four-day ride through the Grand Canyon. We'll see fossil remains from a time when the rock above us was an ocean floor, we're told.

We'll bounce through rapids shaped by the gravitational tug of the Colorado River at its most muscular. We'll catch glimpses of bighorn sheep climbing canyon walls and stick our heads under little waterfalls squeezed out of those same walls, rising a mile above the river. At night we'll sleep on beaches of sugar sand and stare through a sliver of sky at the immensity of the universe. No, sir, not a disheartening word.

"Damn! No service."

"What's that?"

"I can't get the score."

That's a good thing, I tell my son, Casey. Yes? Well, no. He's a millennial, mid-20s. I'm a baby boomer, approaching an unmentionable age. My generation loves the national parks to death. His generation, slightly larger than mine, will have to save them. We had gorged on social media the night before, a last digital meal. Tweets, texts, emails, websites, Facebook, and Snapchat. We used Yelp to find the best hole-in-the-wall Mexican restaurant in all of northern Arizona and our smartphone GPS to guide us back to our hotel in Flagstaff. Now for the diet: a fast from our devices, our overconnectedness. What could be a better antidote to our eight-second attention span than a landscape that is nearly two billion years old?

Our 37-foot craft is, technically, a pontoon boat, though it looks and handles like an oversize raft. It's powered by a single small engine and is very retro looking, customized after years of banging down the river. There are 16 paying clients and three guides. We shove off just before noon, the June temperature in the mid-90s under cobalt blue skies. Woo-hooooo! We are the lucky few. Most of the five million or so people who visit Grand Canyon National Park every year never get beyond the rim, stopping for a quick selfie.

For my family, growing up in the West, love of the outdoors was a religion and the national parks its cathedrals. We toured these shrines of original America in a station wagon without air-conditioning and slept in a leaky canvas tent. My folks never had a lot of money, but we were rich, my mother said: All of this glorious public land was ours, a birthright of citizenship. My wife and I raised our two kids to love the parks as well. Yellowstone and Yosemite, Mount Rainier and Glacier—check, check, check, and check. But in Casey, I sensed a bit of meh. And in that, he is not alone.

"Young people," Jonathan Jarvis, director of the National Park Service, told me, "are more separated from the natural world than perhaps any generation before them." That's quite an accusation.



Jarvis has been saying this for a couple of years, in different forums in the run-up to this year's Park Service centennial. "There are times when it seems as if the national parks have never been more passé than in the age of the iPhone," he warned in one speech. "The national parks risk obsolescence in the eyes of an increasingly diverse and distracted demographic."

Obsolescence? How could that be? Last year national park sites clocked 307 million visits—an all-time record. Fifty-seven locations set high-water marks for attendance. Oh, but don't be deceived by the numbers, Jarvis advised during an interview in his office, a few blocks from the White House. Take a closer look at who's going through the gates: people like the silver-haired Jarvis and, well... me. It's a risky thing, this generalizing about generations. Did our kids fall out of love with America's Best Idea? Or maybe they never fell in love to begin with. Anecdotally, I have noticed a passion deficit among Casey and his friends. And technology, as a companion, is a must. A large majority of millennials—71 percent—said they would be "very uncomfortable" on a one-week vacation without connectivity, according to a survey by Destination Analysts. For boomers, the figure was 33 percent. Looking

On a backpacking trip to South Dakota with three friends, Andrew Notsch basks in the sun at Badlands National Park. The prehistoric creatures on his tattoos are reminiscent of remains found in the park's rich fossil beds, such as a saber-toothed cat.

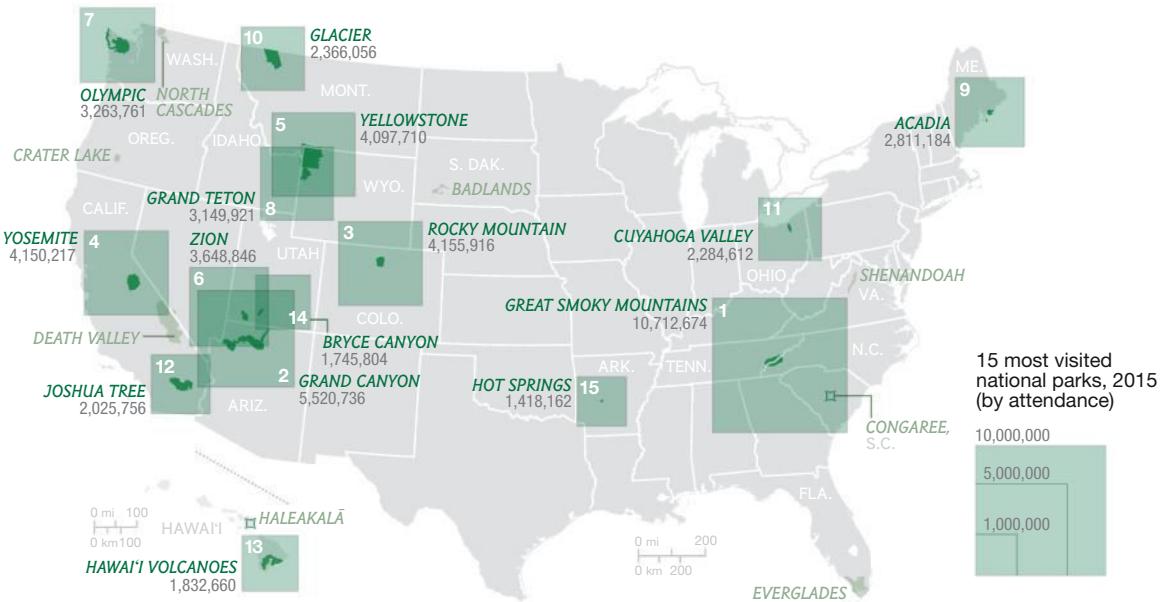
for answers, we put together a father-son trip, a generational journey to the heart of one of the world's most powerful places. My hope was that I wouldn't have to proselytize, that the land itself would work its magic. His hope was that he would "remain entertained after the thrill of my first Instagram photo has been captured," he said, half in jest. I rolled my eyes.

IN THIS ANNIVERSARY YEAR of the National Park Service, we have heard a lot about budgets and maintenance backlogs, about overcrowding and climate change. But the greatest concern of the keepers of our special places is the next generation. The parks have a diversity problem—age and color. At a time when nearly one in four Americans is under the age of 18 and half the babies born are racial or ethnic minorities, they say most park visitors are older and white.

"If we were a business, we'd be out of business in the long term," Jarvis said. He pointed

Preserving Popularity

National parks remain top vacation destinations for many Americans, with a record number of visits in 2015. But stewards of the parks worry that younger, more diverse generations are not as drawn to them.



to a framed picture hanging in his office, one of the iconic views of Grand Teton National Park, bathed in glorious evening light. I'd seen the photo before, had hiked among those very peaks, and still it made me marvel. But when a similar lovely picture was shown to inner-city kids, growing up without a tradition of national park visits, Jarvis had an epiphany.

"It looked scary to them. Empty. Forbidding. Not welcoming. They said, 'Where are all the people?' We had the same experience when we brought a group of students from Los Angeles to Death Valley. They wouldn't get out of the van. The quiet, the pure darkness, unnerved them and threatened them."

The parks belong to all the people—but only some appear to be using them. When he headed the Pacific West Region, Jarvis used to take the Bay Area train system to work. On his commute he was immersed in the demographic milieu of the New America. On other days he would drive four hours to Yosemite, where nearly everyone looked like him.

"The national parks are our holy places," he said. "But they've got to be more than an assembly of antique buildings and natural curiosities appealing to a certain kind of person." His boss,

Sally Jewell, the secretary of the interior, noticed a similar thing when she was president and chief executive officer of REI, the outdoor-gear retailer.

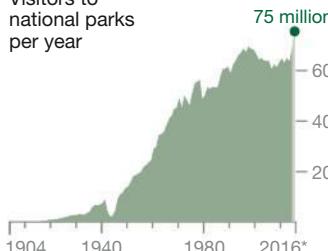
"At REI we spent a lot of time looking at trends that will affect our business over the next 25 years," she told me. "We learned some very powerful stuff. For blacks and Latinos there were cultural barriers to enjoying the outdoors. And for the young, in many cases, it was about technology." Other studies have found similar results. The agency's last major comprehensive survey of demographics, released five years ago, did not have figures for age but did find that park visitors were "disproportionately white."

To fix this, Jarvis started a campaign that presents a different face of the parks. The cover of a centennial brochure shows an African-American teenager watching five young people leap off a dock into a lake. They're having fun. There's nothing scary or lonely about the landscape. These are parks with people. Promotions now feature lots of different kinds of visitors, younger, as well as brown and black and white. An initiative called Every Kid in a Park, launched by President Barack Obama, offered all fourth graders and their families free admission to national parks for the past school year and summer break.

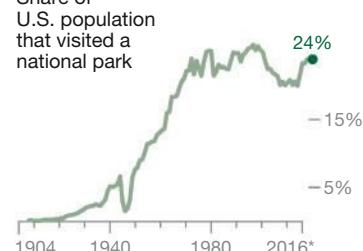
Visitor Tally

As the country's middle class grew and park amenities improved in the postwar years, visits soared. But since 1995, the percentage of the population using the parks has dropped. Some fear that decline could weaken support for the parks.

Visitors to national parks per year



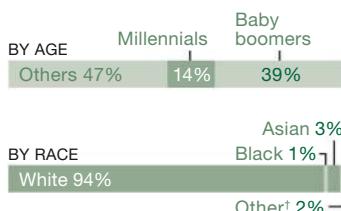
Share of U.S. population that visited a national park



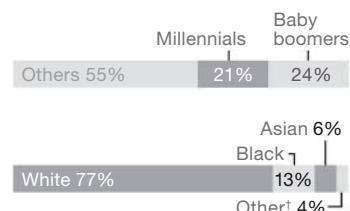
Diversity Gap

The most recent data, a survey of visitors to Cuyahoga Valley, just 20 miles from Cleveland, show why park officials are targeting millennials and minorities. They have visited that national park in numbers well below their share of the population.

Cuyahoga Valley N.P. visitors, 2015



Share of U.S. population, 2013



In a speech outlining “a course correction” for the parks, Jewell promised to extend the program for 12 years, saying, “We’ll have a whole generation of students whose love for public lands was sparked in fourth grade.” The agency learned from an earlier crisis, in the 1950s, that institutional inertia can mean slow death. The parks then were crumbling, with pothole-pocked roads and outdated visitors centers. “Let’s Close the National Parks” was the title of a call-to-arms piece in *Harper’s Magazine*. What followed was an investment of people and dollars, helped along by a jingle from the auto industry, urging people to “See the U.S.A. in Your Chevrolet.”

The new crusade is just a start, but it’s a big one: part of the largest ever marketing campaign in Park Service history. Yes, marketing, the stuff they do for deodorant. John Muir, the Scottish-born naturalist and a founding voice of the national parks movement, might get tangled in his beard to hear such talk. But the early returns are promising. More young people and more people of color are visiting their country’s historic sites, scenic wonders, and sacred temples, Jewell said. At least two million people have downloaded Every Kid in a Park special passes.

The technology question is trickier. Young

people devote more than seven hours a day to electronic media, according to a Kaiser Family Foundation study—more than 50 hours a week in front of a screen. For children 11 to 14 years old, it’s nearly 12 hours a day.

“We’re not going to wire up the backcountry,” Jewell said. “But the question was, How do we embrace technology instead of vilifying it?”

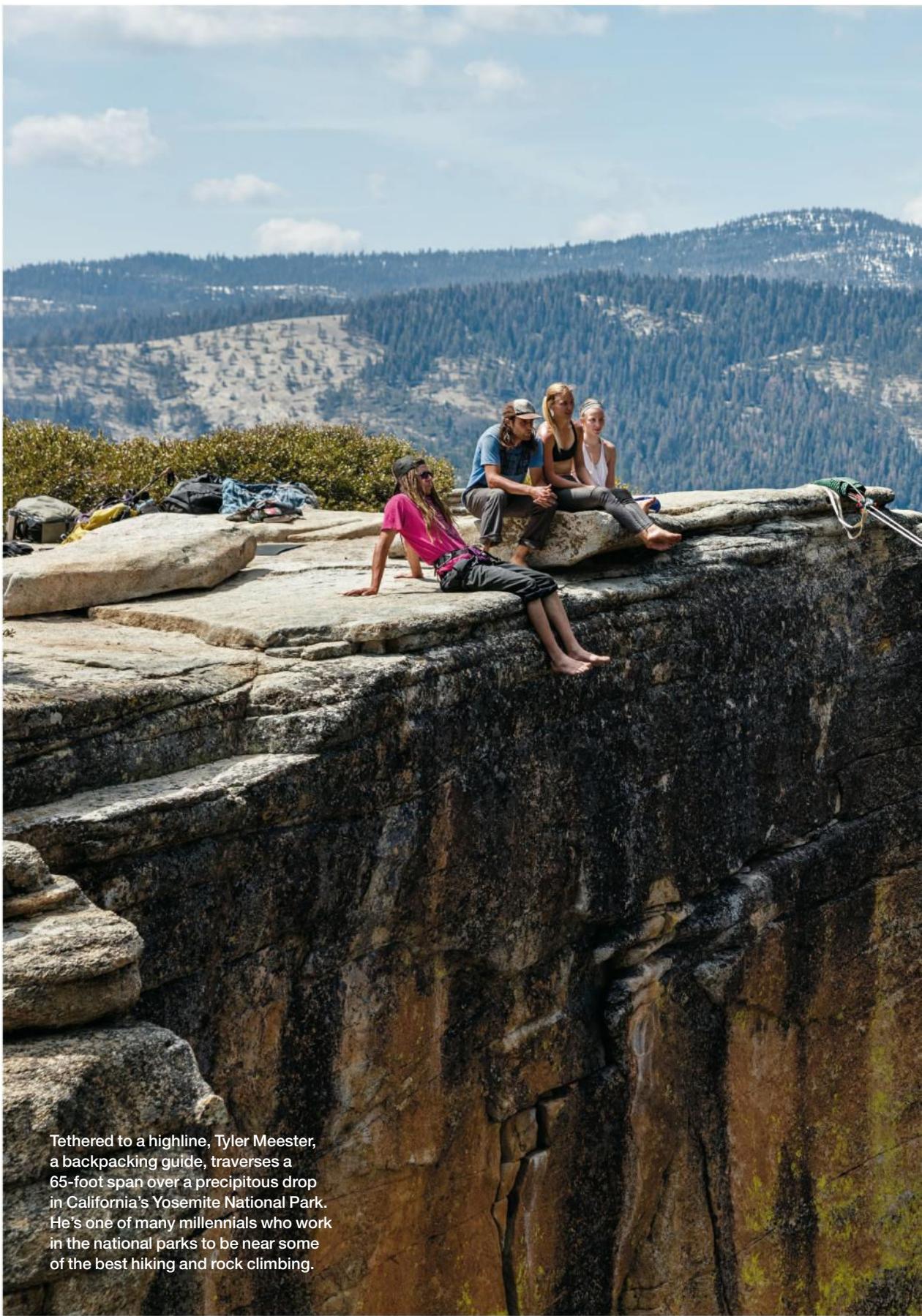
Rather than rage against the times, the Park Service has joined the digital age—sort of. With much fanfare, the agency rolled out a campaign to find a larger and younger audience for its, um, product, using a constantly updated website, extensive social media outreach, and temporary kiosks in a few cities, such as New York, where users can take a brief virtual tour of every national park. In other words, they decided to use screens to try to get young people off their screens.

“We’re doing everything we can to have the face of the national parks reflect the face of the United States,” Jewell said. She mentioned that when Bella Thorne, the 19-year-old actress and singer, tweeted #findyourpark to her six million Twitter followers, it “meant a lot more than when I did it.” But can you market your way back to relevance? Do we really need focus groups to find out how the next generation feels about our parks? And

Au naturel at Glacier National Park, friends from Montana State University in Bozeman celebrate trail's end. The five frequently hike into wild areas in Montana and nearby states, reveling in their adventures by sharing images on social media.







Tethered to a highline, Tyler Meester, a backpacking guide, traverses a 65-foot span over a precipitous drop in California's Yosemite National Park. He's one of many millennials who work in the national parks to be near some of the best hiking and rock climbing.





all this poking, prodding, and studying of millennials and minorities seems a bit odd, as if a cluster of green-uniformed Very Concerned Experts were trying to fathom an unknowable species.

THE COLORADO RIVER was a churn of chocolate brown from silt and the hurried runoff of flash storms. During our trip it flowed at about 14,000 cubic feet per second—that is, roughly 527 tons of water, enough to smash a canoe caught sideways. It was cold, this muddied stream in the arid West, because it came from the depths of a reservoir, behind the Glen Canyon Dam.

On our first day on the river, entering a patch of rough water, we were anxious, clenching the side. But soon we couldn't wait for the next roll through the rapids. When a wave curled over our boat and soaked us to the bone, it was a numbing, pleasant sensation. Everyone hooted with joy. In the calmer stretches, the canyon was quiet, save for the sound of flycatchers and other birds gliding just above the surface. The cliffs rose around every bend, the colors bright shades of antiquity. We took breaks along the shore, exploring a tuft of wildflowers here, an enormous natural amphitheater there.

In the evening we feasted on prime rib and portobello mushrooms, cooked over a gas grill.

We spread ground covers and light sleeping bags over the soft sand and watched the remains of a day slip away. It was sublime. But still, Casey and I experienced a bit of Internet withdrawal. The NBA finals—the championship!—remained unknown to us in our digital desert. The U.S. presidential campaign was in turmoil, and of course I wondered, What had Donald Trump said now? Had the stock market crashed or soared? I could only imagine who might be seething because I'd failed to respond to an email or text. It wasn't just us. The youngest member of our trip, an eighth grader from Austin, Texas, had brought along a cell phone, two spare ones, and a portable charger powered by the sun. He had plenty of power but no connection. When he couldn't get a single bar, he looked as though he were starting to twitch.

We should just ... let ... it ... go, I suggested. Try to be mindful. Stare at the stars. Drift. "I get it," said Casey, "this thing about being disconnected. But what if you had pockets of opportunity to dip back in? Everyone I know likes to share—publicly—what we're doing. We are social travelers. If you can't share it now, is it really happening? Just a thought."

He complained about sand in his bag, bugs, and no hot shower. We were both mildly worried about



scorpions. They sting and sometimes take up residence in the folds of sleeping bags. Still, I pressed on with proselytizing, something I'd tried to avoid: This is heaven. He conceded the point about the setting, the company, the food, the adventure. But he'd never understood the *idea* of camping.

"It seems like well-off white people trying to experience homelessness in a safe, natural setting," he said. In this sentiment, again, he was somewhat typical of his generation. The number of people who camp overnight in park backcountry is down significantly from 35 years ago—which the service attributes to millennials being less enamored of roughing it than earlier generations. I tried to make the case for sleeping on the ground. We had the best of all worlds: wilderness and relative comfort. It wasn't so long ago that the Grand Canyon was a blank spot on the map—marked "unexplored" on an 1855 plat of the southwestern territories. Fourteen years later, John Wesley Powell, the one-armed Civil War veteran and far-seeing geologist, led a 10-man expedition to solve one of the last great geographic mysteries of the United States. "We have an unknown distance yet to run; an unknown river yet to explore," he wrote on August 13, 1869, as he prepared to plunge into the gnarliest part of the canyon. "What falls there

Fifth graders in a three-day program called Mountain School learn about the outdoors at North Cascades National Park in Washington State from young rangers and graduate students. Seeking work in nature, some millennials join fire crews, like this one taking a break after setting a backfire at Crater Lake.

are, we know not; what rocks beset the channel, we know not; what walls rise over the river, we know not." By the early 1940s, only about 250 people had gone through the canyon in boats.

"Don't get me wrong, Dad—I feel lucky," Casey said. "I realize this is something very few people get to experience. It's like I'm getting a private tour of someone's really nice house."

The next day we rose with a half-moon still visible in the dawning sky. We ate a breakfast of scrambled eggs, sausage, and fruit, broke camp, and got on the river just as the first rays of sunlight were touching the upper canyon walls. My hope was that both of us could slow down, if not to geologic time, then to river time, to channel our inner Huck Finn.

By mid-morning we'd gone through a half dozen rocking rapids in the stretch of the river known as Marble Canyon. This was where Floyd Dominy, the most consequential head of the Bureau of



With its enchanting rock formations, Joshua Tree National Park in California is a popular destination for young people. Some live out of their vehicles and travel from one climbing spot to the next, often creating impromptu communities in park campgrounds.





A photograph showing several people soaking in a natural hot spring. In the foreground, a woman with long, dark, wavy hair is leaning forward, her head submerged in the water. To her left, another woman with blonde hair is smiling and has a small stack of rocks balanced on her head. In the background, a man is seen from behind, wearing a white baseball cap. The water is a warm, brownish color. The surrounding environment is rugged and rocky, with a large cliff face visible in the distance.

In Yellowstone National Park, bathers, including Montana State students, soak in the Gardner River where hot springs pour into it near the Montana-Wyoming border. It's one of the few spots in the park where people can safely immerse in thermal waters.



Reclamation, which manages federal water projects in the West, wanted to build another dam on the Colorado, to go along with the Glen Canyon colossus he'd constructed upriver. His plan to mess with the magnificence of a free-flowing river inside one of the most treasured parks inspired a campaign comparing the scheme to flooding the Sistine Chapel. Park lovers prevailed. It's precisely that kind of conservation constituency in a newer generation that will be needed to protect wild places through the next hundred years.

The threat this time is a plan to construct a billion-dollar development on the canyon's eastern end, a knot of hotels, stores, and restaurants built around a tramway to the bottom. Our guides were describing this project just as we pulled ashore at the junction of the Colorado and the Little Colorado—known as the Confluence, a sacred place in tribal creation stories—where the proposed gondola would dump thousands of visitors a day. The smaller river was much warmer and a brilliant aquamarine color. We hiked up this side canyon and floated down on our backs. Then we did it again and again and again, until we were worn out with giddiness.

In the evening we set up camp on a beach with more open views than the night before.

The kid from Texas with the three cell phones still couldn't get a signal. We had the usual lively camping conversations, aided by a bit of whiskey passed around among the adults. Someone made an assertion that sounded like bunk. "Too bad we can't Google it," Casey said. We were in one of the places left on Earth where all the world's recorded knowledge could not be summoned to a device in the palms of our hands; it was only a minor annoyance. Casey shrugged, staring at the moonlight on the tiers of rock.

"It's pretty sweet, this place. Like the Manhattan of nature."

"The what?" I asked.

"Canyons that go on forever, changing in color and rock type, the same way architecture changes in different neighborhoods of New York."

On the third day, as we passed other boats, the guides talked to each other in hushed tones. They let us in on the news: Someone was missing from another group, a guide, as it turned out, who'd last been seen hiking along the shore. For all the fun and luxe services, the canyon was still a wild place, unpredictable in its way. We experienced this ourselves later that day when our boat slowed, as if snagged, just as we entered one of the bigger rapids. The guide worked the engine



and steered one way and the other. Then our craft swung, dangerously, to the side, and just as quickly swung back. Casey and I caught the expression on her face; that was not a planned move. One of the world's most regulated rivers could still throw a punch.

Powell's expedition had been fraught with peril. Only six of the 10 men who started the journey came ashore at the end. Two of the wooden boats were gone. The survivors were sunbaked, nearly starving, and psychologically rattled. "I never want to see it again," wrote Jack Sumner, a guide and outfitter on the expedition.

ON OUR FINAL DAY we were planning to hike out—9.5 miles and 4,380 vertical feet—up Bright Angel Trail to the South Rim. To beat the heat, we started in darkness, a few hours past midnight. We switched on headlamps and jostled gear in small backpacks. A light rain fell. This was a relief. We crossed a suspension bridge over the Colorado and then followed the well-maintained trail, corkscrewing our way up. The rock floor is around 1.8 billion years old. At the rim, the Kaibab formation is 270 million years old. With each mile, we advanced another 160 million years or so.

As the rain picked up, the walls came alive

With Yosemite's Half Dome behind them, rangers Diana del Solar and Christina Warburg strike a pose. Their shots appear on *@yosemitenps* on Instagram and *usinterior* on Snapchat. Steven Donovan, flipping into a pool, took a seasonal job at Glacier to work on his photography skills. He posts to *@es_dons*.

with waterfalls. What had been parched and chalky now seemed lush and Edenic, like a rain forest, with a similar soundtrack. We moved at a good clip, passing mule packs on the way down and knucklehead tourists in flip-flops and plastic garbage bags for rain gear. When we stopped, every two miles or so, we took in the sensory overload, all this water pouring through a painted chasm. By midday, we'd reached the South Rim, a hive of visitors and languages, hotels and restaurants, stores and rental cabins. I checked with a ranger who said that the missing guide had not been found. It was a chilling note on an otherwise triumphant return to the clank of civilization.

We spent a half hour or so on our phones, catching up, all information back in our hands. The presidential campaign was still chaotic. The NBA finals had a game yet to play. The stock market had moved sideways. Half the unchecked emails, at least, were ones you didn't want to respond to

A conservation constituency in a newer generation will be needed to protect wild places through the next hundred years.

anyway. We put our screens aside, slow-sipped our beers. As it turned out, we hadn't really missed anything. But we had gained something.

IN EARLY FALL I went to North Cascades National Park—the American Alps, chock-full of glaciers containing the frozen memories of wet winters past. A bundle of high peaks in Washington State, the park is one of the most remote places in the contiguous 48 states and also one of the least visited parks. But here, deep in the forested embrace of the upper Skagit River Valley, you can find the next two generations of Americans getting to know a national park. I heard hooting like owls and howling like wolves, coming from a circle of fifth graders and their wilderness instructors. The kids were from Birchwood Elementary in Bellingham, Washington, a school where almost half the students are nonwhite and most had never been in a national park. They were there for Mountain School, three days in outdoor immersion run by the North Cascades Institute. Their guides—staff naturalists, park rangers, graduate students—were all millennials. Without exception, the instructors thought the concern about their generation's attachment to the land was valid, but overstated.

"It's not like all of a sudden people are going to stop loving nature," said Emma Ewert, who had gone to Mountain School and returned as an instructor. "But you do need the exposure, the fun of playing in the woods." For that, perhaps, we should look to today's parents, those afraid to let their children wander a little bit on their own.

The institute's co-founder and executive director, Saul Weisberg, is a self-described Jewish kid from New York by way of Cleveland. He's 62 now, wiry, with a bounce to his step. He learned

to love the parks from his family, camping in a tent not unlike the one my folks used. He became a seasonal ranger at North Cascades and noticed a troubling pattern among visitors. "I don't think I ever saw a person of color in the backcountry," he said. He started Mountain School in 1990, partnering with the Park Service. About 3,000 students a year go through the program.

Though these kids lived only two hours or so away, this park was a strange new world for them. Many said it was the first time they'd been off the electronic leash of a family smartphone. "They have a very short attention span," Ewert said.

Most of the instructors I met, as with top brass at the Park Service, said a big problem with children was nature deficit disorder, a term coined by writer Richard Louv in his 2005 book, *Last Child in the Woods*. He argued that certain behavioral problems may be a consequence of how little time young people spend outdoors. By contrast, kids who are not divorced from nature are less likely to get sick or stressed and are more adaptable, Louv claimed. Technology gets the blame.

When I talked with Louv, he expressed optimism that things were turning around. He cited the record parks visitation last year and the popularity of Every Kid in a Park. His latest initiative is to get more young people to experience nature in the city. It's the best way to start a lifelong love affair, he said. "More connection and care for nature near home will create more respect, care, and political support for national parks."

At Mountain School, the instructors note changes in behavior over the few days the kids spend in the forest. They start to identify types of trees and small animals, and notice distinctions in sounds and smells. "Parents say, 'What did you do to my child?'" said Carolyn Hinshaw, a teacher at Birchwood.

The parks director, Jarvis, is a big fan of Mountain School and similar programs, like Nature Bridge, which brings 30,000 students every year to a half dozen national parks. But he cautions that one visit does not a park lover make. "Something clicks, a light goes on, just by having some exposure," he said. "I think it takes three touches for someone to change. A great first impression,

but no follow-through, is not enough.” What’s needed, he said, is a broad cultural shift—a return, of sorts, to a time when outdoor exposure was a basic nutrient of American life.

WHILE I WAS in the North Cascades, Casey went to Shenandoah National Park in Virginia. The colors of the hardwood forest in fall impressed him. “Lots of blood orange, yellows, and reds—it had a fantasy-utopian feel to it,” he said. He and his girlfriend toured along Skyline Drive, pulling over for pictures with a selfie stick, laughing at themselves in the pose of a demographic cliché.

“The selfie sticks were everywhere,” he said.

They hiked Marys Rock. The summit was thick with people their age, the twentysomethings nearly as common as the white-tailed deer. The people Casey spoke with said they hadn’t come to Shenandoah as a solo destination—as my parents might have. It was something to do along with something else, like touring a winery.

Does it matter how the parks fit into their lives? Not really. At least the parks have a place in their lives. Affection for landscapes and people can take many forms. On Marys Rock on that Sunday afternoon, the Park Service had nothing to worry about regarding the next generation.

A few months later Casey and I went to Joshua Tree National Park, where the Mojave and Sonoran Deserts meet in Southern California. From Los Angeles, we drove four hours through the ceaseless sprawl and choking traffic. Finally, after chugging up more than 2,000 feet, we arrived in the darkness of a winter eve. The moon was nearly full, giving off enough light to see the eerie outlines of the signature trees. We hiked without destination or path, using the jagged-toothed horizon as a guide. We were lost, but it was hard to get really lost, it seemed, in the Flintstones wonderland of Joshua Tree, which the rangers promote with the slogan “Half the park is after dark.”

This desert sanctuary is popular with Casey’s generation, with its lost-world, sci-fi vibe. Artsy types are drawn to it. It’s known, also, as a place to trip, and not in the way those who saw the U.S.A. in their Chevrolet did. We got up early and wandered some more, bouldering on the clean rock,

going wherever our curiosity took us. The Joshua trees looked whimsical, as if drawn by Dr. Seuss.

We hiked to the top of Ryan Mountain, where a summit sign indicated we’d topped out at 5,457 feet above sea level. The wind was knock-you-down strong, and the views were to forever, in all directions. There was fresh snow on the peaks to the west. It was a wonder to both of us on Ryan’s bald top that an island of soul-lifting wild land could still be found in the clutter of California. I thought of John Muir’s argument for national parks—a curative for a frenzied era, he’d called them, places to escape “the stupefying effects of the vice of over-industry and the deadly apathy of luxury.” At the time, the first years of the 20th century, the nation was a mere 76 million people, coping with an immigrant surge and the rough pivot to the industrial age. What would Muir, who spent much of his life making the case that national parks were vital to a growing democracy, think of the stupefying effects of overindustry in our noisy nation of nearly 325 million people?

Casey told me it had started to grow on him—the idea that his generation had a duty to ensure that people could stand atop Ryan Mountain a hundred years from now and take in the same things. Joshua Tree, a landscape at least a hundred million years old, forces you to think in long arcs, well beyond the quick-flash processing of our age, he said. “And there’s definitely a therapeutic effect—just being here.”

Whether this park would continue to be a living thing, with its nearly 750 plant species, was perhaps out of our control. In part, it would depend on whether all those kids the Park Service is trying to engage find a little bit of religion in their visits. At dusk, just before we started back down, I caught a glimpse of Casey with his phone out. He quickly stuffed it in his pocket, and smiled back at me.

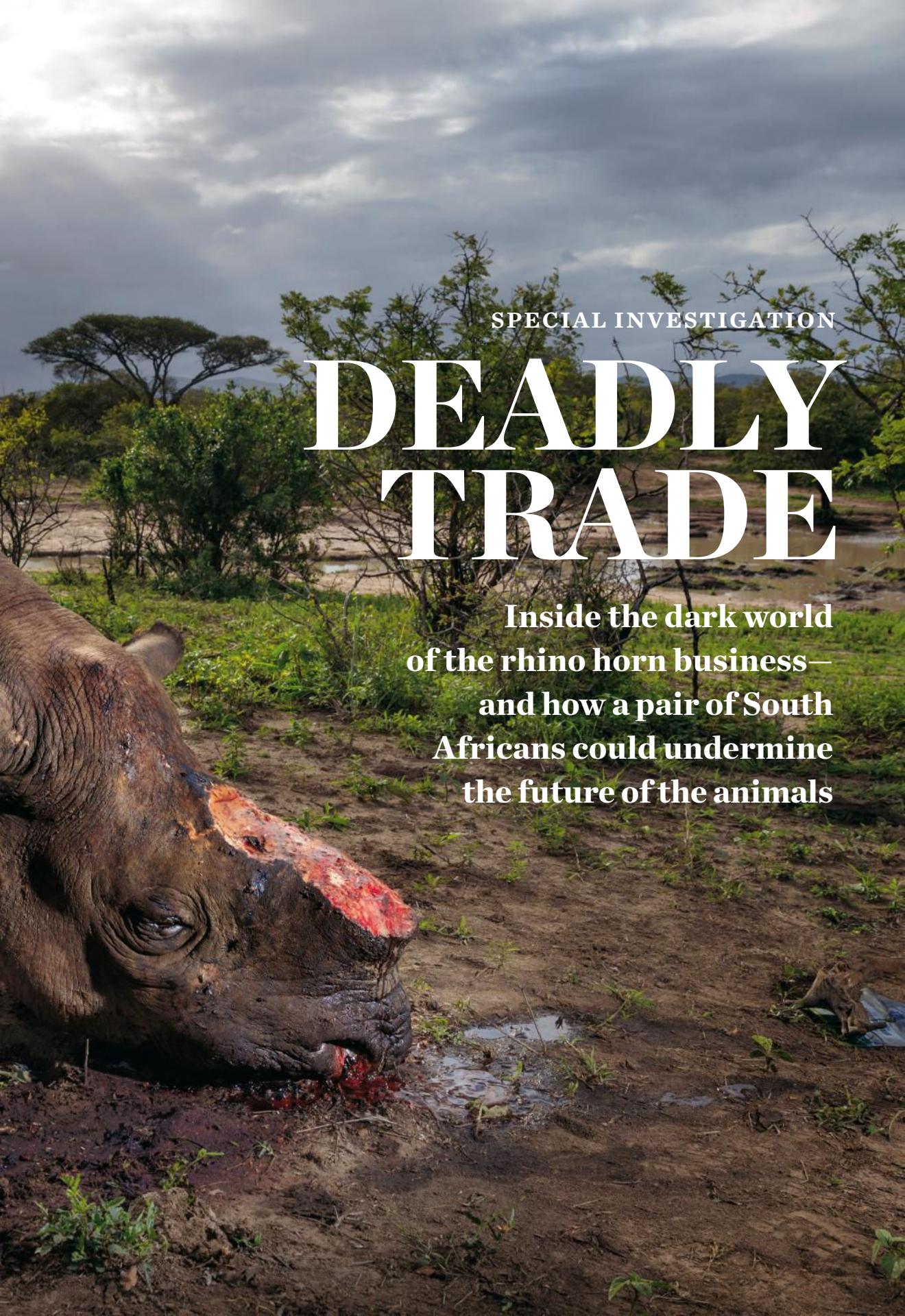
“What is it?” I asked.

“Three bars,” he said. “But who cares.” □

Timothy Egan is the author of eight books and a columnist for the *New York Times*. He won a National Book Award and shared a Pulitzer Prize. **Corey Arnold** is both a photographer and a commercial salmon fisherman.



Poachers killed this black rhinoceros for its horn with high-caliber bullets at a water hole in South Africa's Hluhluwe-Imfolozi Park. They entered the park illegally, likely from a nearby village, and are thought to have used a silenced hunting rifle. Black rhinos number only about 5,000 today.



SPECIAL INVESTIGATION

DEADLY TRADE

Inside the dark world
of the rhino horn business—
and how a pair of South
Africans could undermine
the future of the animals



FILMED

MALI

Mozambican authorities say these men confessed to intending to poach a rhino in South Africa's Kruger National Park. They will be charged under a new wildlife conservation law and, if convicted, face a maximum prison sentence of 12 years.







A security team member (displaying his “antipoaching unit” tattoo) holds a rhino’s horn at the ranch of John Hume—the world’s top rhino farmer—in Klerksdorp, South Africa. The horns of Hume’s 1,300 rhinos are trimmed every 20 months or so and grow back. He stores them in hopes of a legalized trade, which he says will reduce poaching, a claim many conservationists reject.

South African game rancher Dawie Groenewald faces 1,739 charges related to rhino horn trafficking and rhino poaching. In addition, the United States is seeking to extradite him and his brother. A lawsuit Groenewald is financing that challenges his country's ban on the sale of rhino horn has put his criminal case on hold.

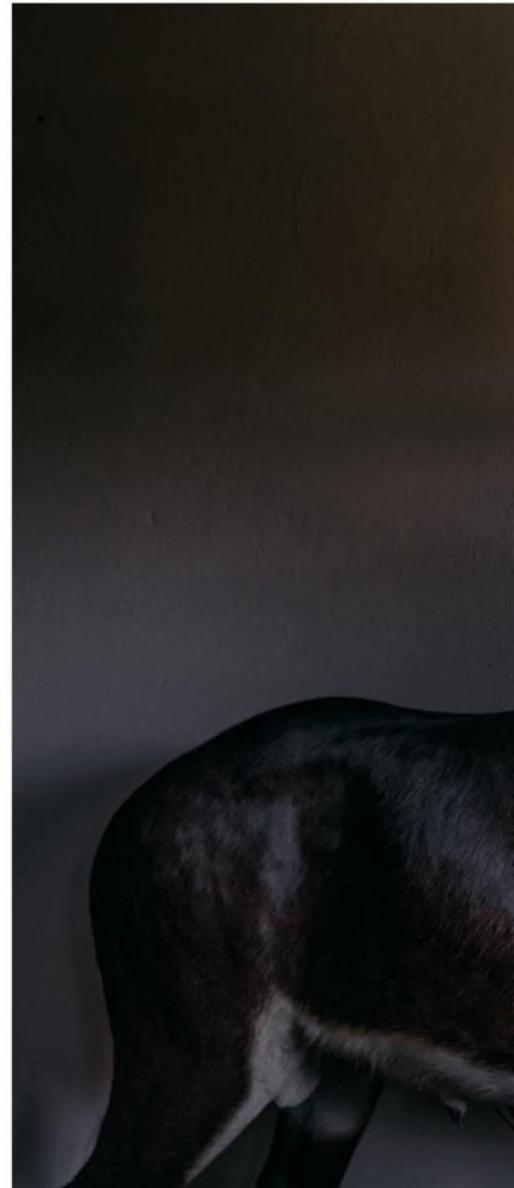
BY BRYAN CHRISTY
PHOTOGRAPHS BY BRENT STIRTON

It was a five-hour drive from South Africa's Kruger National Park, home of the world's largest wild rhinoceros population, to Polokwane, home of the world's most wanted man when it comes to rhino horn trafficking: a millionaire safari operator and ex-policeman named Dawie Groenewald.

To meet Groenewald, photographer Brent Stirton and I sped in two cars through gorgeous, winding mountain ranges. But then night fell, and in the darkness outside the city someone had poured tar down the center line of the highway and set it ablaze. It appeared to be another protest rooted in the racial and economic tensions that continue to flare in South Africa more than two decades after the end of apartheid. We wove around the fire only to come upon a traffic jam and a makeshift roadblock a mile later. In the middle of the

road what looked like a sofa was on fire, the flames shooting 10 feet into the air. Large rocks blocked all four lanes. Brent got out of his car and moved rocks too big to drive over, while I watched for an ambush. We picked our way through the gantlet as unseen people hurled stones from beyond the shoulder.

We stayed the night at a dank roadside hotel, then waited, in accordance with Groenewald's instructions, at a gas station for his man, Leon van der Merwe, to meet us. We followed him for 20 minutes along an expanse of immaculately





fenced property until we reached two stone pillars with a gate that slid open electronically. Standing in the driveway, hands on his hips, was Dawie Groenewald.

Today Groenewald, who has been called the “butcher of Prachtig” for what he allegedly did to rhinos on his hunting property of that name (*prachtig* is Dutch for “beautiful”), and 10 co-defendants face 1,872 counts in a South African indictment. The “Groenewald Gang,” as South Africa’s press has dubbed them, are charged variously with illegally killing rhinos, illegally

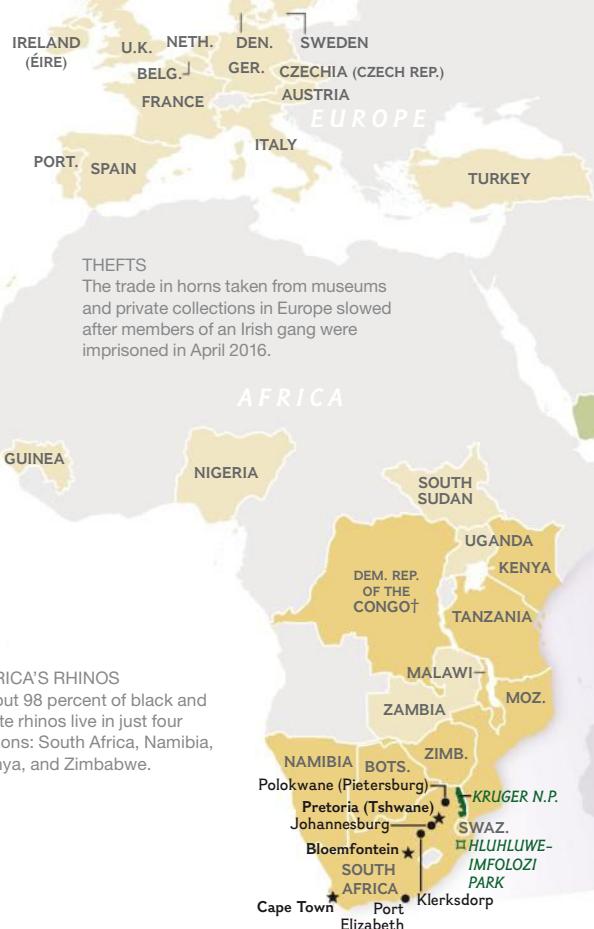
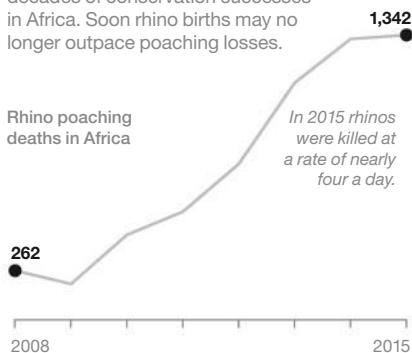
dehorning rhinos, trading in rhino horn, racketeering, money laundering, and related crimes. In the United States, Groenewald and his brother, Janneman, have been indicted for tricking nearly a dozen American hunting clients into illegally killing rhinos at Prachtig, and U.S. authorities have requested their extradition. In the Czech Republic investigators linked Groenewald to a rhino horn-trafficking syndicate after discovering that horns shipped to Vietnam came from rhinos shot by Czech hunters at Prachtig. Groenewald denies knowing the

Tracing the Horn Trade

The international sale of rhino horn—a popular yet ineffective medicine and hangover cure in Vietnam and China—has been banned since 1977. Soaring demand in these countries, where it's considered a status symbol, caused a rapid rise in prices. As law enforcement battles the trade, increasingly organized traffickers nimbly shift their supply routes of poached or stolen horn.

Poaching on the rise

Demand for horn is undermining two decades of conservation successes in Africa. Soon rhino births may no longer outpace poaching losses.



purpose of these hunts. He was once banned from hunting in Zimbabwe and has been expelled from the Professional Hunters' Association of South Africa.

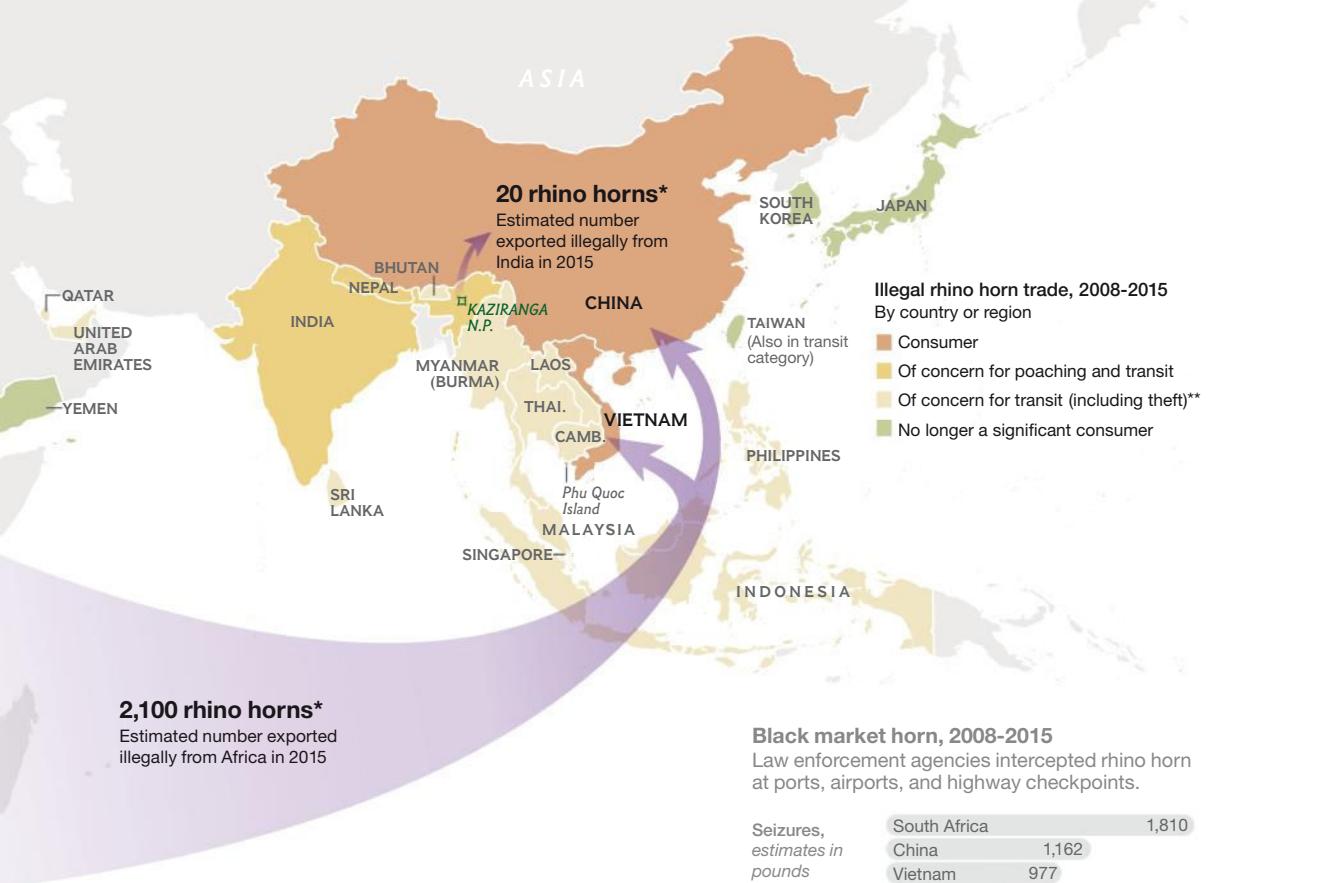
This is the story of Dawie Groenewald, an accused rhino horn trafficker, and John Hume, the owner of the world's largest rhino farm—two men who know each other well and share a common goal: to end the South African and international bans on trading and selling rhino horn. Groenewald has agreed to see Brent and me at a time when he is in a high-stakes legal battle that could land him in prison for decades or create an opening for the legal sale of rhino horn in South Africa—an opening that could help pave the way to a legal global trade, which opponents say could doom rhinos.

THE RHINO CRISIS

South Africa is home to nearly 70 percent of the 29,500 rhinos left on Earth, down from several hundred thousand in Africa before the 1800s, when the European imprint on the land intensified. They're spread across two continents and

five species: the white rhino, with some 20,400 remaining; the black, with 5,250; the greater one-horned; the Sumatran; and the Javan. According to South Africa's Private Rhino Owners Association, 6,200 of the country's rhinos are in private hands and are used commercially for photographic safaris, legal hunting, horn production, and breeding.

The horn of a rhinoceros is the world's most valuable appendage in an exotic marketplace that values nature's oddities, such as elephant ivory, tiger penis, and giraffe tail. Unlike the horns of many species, including cattle, rhino horn is not made of bone. It is made of keratin, a protein also found in our hair and fingernails, and if you trim a rhino's horn, it grows back. Although selling rhino horn is illegal, in South Africa if you have a permit, you can cut off a rhino's horn. Every year or two South African rhino farmers tranquilize their animals with darts, cut as much as four pounds of horn from each rhino, and store it all in bank vaults and other secure locations, hoping for a day when it's legal to sell horn.



Black market horn, 2008-2015

Law enforcement agencies intercepted rhino horn at ports, airports, and highway checkpoints.

Seizures, estimates in pounds		
South Africa	1,810	
China	1,162	
Vietnam	977	
646	Mozambique	
170	Kenya	

Meanwhile a booming illegal trade supplies mostly Vietnam and China, where rhino horn is often ground to a powder and ingested as a treatment for everything from cancer to sea snake bites and hangovers. Inspired by years of erroneous reporting by Western media, people have recently also been using rhino horn as an aphrodisiac. On the black market in South Africa, the horn of the white rhino sells for up to \$3,000 a pound, according to Groenewald, but on Asian black markets it wholesales for five to 10 times that, and retail prices can go up astronomically from there. A single bull rhino carrying 22 pounds of horn might buy a new life for a Mozambican poacher who slips over the border into Kruger National Park with an AK-47, but that poacher himself is likely to be exploited by the men who supplied his weapon. That poacher also may be shot by authorities, as were 500 Mozambican poachers in Kruger from 2010 to 2015.

Rhino poaching has reached disastrous proportions during the past decade. In 2007 South Africa reported losing just 13 rhinos. In

2008 it was 83. Last year it was 1,175. In Kruger, home to some 9,000 rhinos, poachers kill on average two to three every day. The killing isn't limited to Africa. In April poachers shot a greater one-horned rhino with AK-47s in India's Kaziranga National Park hours after the Duke and Duchess of Cambridge had visited the park to promote conservation. Rhinos don't roar when they're injured. They keen. A shot mother will cry in pain, sometimes inadvertently causing her frightened baby to return to her. Poachers will sever a baby's spine with a machete to save a bullet, then take its horn too.

For those on the front line, protecting rhinos is no longer a conservation challenge: "It's a war," says Xolani Nicholus Funda, chief ranger at Kruger, where most of the world's rhino poaching takes place. "That's our frustration. The rhino war—it's like drugs. It involves lots of cash and bribery. The whole justice system is really a frustration. We're losing cases" in court. "We're surrounded by police stations we don't even recognize as police stations because they're working with the poachers."

“The rhino war—it’s like drugs. It involves lots of cash and bribery. The whole justice system is really a frustration.”

Xolani Funda, chief Kruger ranger

BATTLE IN JOHANNESBURG

In 1977 the international trade in rhino horn was banned by parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the treaty governing the global wildlife trade. But the ban applies only to trade between countries, and it has an exception that horn traffickers have turned to their advantage: Under CITES it is legal to export the horn—or trophy—from a white rhino shot with a permit on a sport hunt. Beginning in 2003 Vietnamese rhino horn traffickers began signing up with South African hunting outfitters to kill rhinos for their horns, and later a Laos-based syndicate even hired prostitutes to act as pseudo hunters. These syndicates were selling horn on the black market back home.

In response to the rapacious hunting, South Africa tightened its hunting rules, limiting hunters to one rhino a year, requiring a government official to witness hunts, and denying permits to hunters from Vietnam. The horn of every hunted rhino had to be microchipped and its DNA signature recorded in the Rhino DNA Index System at the University of Pretoria's Veterinary Genetics Laboratory.

Despite all that, rhino horn trafficking continued. There was another soft spot in the international rhino horn ban that CITES couldn't address: Selling rhino horn within South Africa was legal. But then in 2008 Marthinus van Schalkwyk, minister of environmental affairs and tourism, announced a moratorium on that policy in order “to curb the increase in the illegal trade in rhino horns” and “hopefully discourage poaching.” In February 2009 the ban

on domestic sales of rhino horn went into effect. Groenewald has a simple explanation as to why South Africa refuses to legalize rhino horn sales: “Somewhere along in the government,” he tells me, “there must be high rollers involved in this. You understand what I’m saying?”

Both Groenewald and John Hume say breeding rhinos for the purpose of harvesting and then legally selling their horns will reduce poaching. But Allison Thomson, director of Outraged South African Citizens Against Poaching, a leading anti-legalization organization, disagrees. “Our law enforcement agencies are already hard-pressed to deal with nearly a thousand arrests in 2015 and a mere 61 convictions. Added pressure to monitor a legal trade would undoubtedly make enforcement near impossible, allowing criminal syndicates once more to traffic more horns into the illegal international market.”

The controversy over rhino horn is coming to a head just as South Africa is hosting the triennial meeting of CITES in Johannesburg in September. In 1997 South Africa had proposed lifting the CITES ban on the international rhino horn trade, touting its legal system as up to the task of ensuring a controlled trade that “will depress black market prices and activity.” But that effort failed.

History has shown that removing a trade ban without adequate controls on crime and corruption can be disastrous. In 2007 CITES parties suspended an international ban on trading elephant ivory and authorized four countries—Botswana, Namibia, South Africa, and Zimbabwe—to sell 115 tons to China and Japan. The sale, which took place the next year, was designed to flood Asia’s ivory markets and drive out illegal traders. Instead it signaled that ivory markets were open again, fueling unprecedented elephant poaching across Africa—more than 30,000 elephants a year between 2010 and 2012 alone—that continues today.

“It’s no accident that rhino horn and ivory prices increased around the time CITES started talking about legalizing ivory,” says America’s top wildlife law officer, Chief William Woody of the U.S. Fish and Wildlife Service.

There has been speculation that South Africa,

with a nudge from its ranching industry, might again propose removing the CITES ban on the international rhino horn trade—despite the awkwardness of the meeting’s host country proposing such a controversial plan. “We have done all in our power [to stop poaching], and doing the same thing every day isn’t working,” South Africa’s environmental affairs minister, Edna Molewa, told the *Mail & Guardian* during the CITES meeting in Bangkok in 2013. Instead South Africa announced in May that it would not propose lifting the ban, citing the need for evidence that trade would help free-roaming rhinos, expand rhino ranges, and address corruption and challenges in other range states. But then Swaziland, a tiny country with fewer than a hundred rhinos that is locked almost entirely within South Africa, put forward a proposal to lift the ban.

CARNAGE AT PRACHTIG

Dawie Groenewald ushers us to a long dining table in front of an enormous stone fireplace in the main lodge of his exotic game-breeding ranch. Called Mataka, this is the smaller of his two properties—1,853 acres and 125 miles south of Prachtig. Outside he has two shiny helicopters, a stable of Arabian horses, and acres of high-priced, exotic game he’s going to show me later, including rhinos. Inside are two great rooms filled with black leather sofas and taxidermy.

He sits down at the table, and his servant, Andrew, brings him a plate of lamb knuckles—*skop*, he explains, making a chopping motion with his left hand at his right forearm. Brent and I opt for a bowl of dried beef called biltong and a couple of Cokes.

Groenewald started Mataka in 2012, two years after his arrest, but he didn’t end hunting operations at Prachtig. He established a new business, Wild Africa Hunting Safaris, that replaced the original one, Out of Africa Adventurous Safaris. “I had [an American] politician two years ago; he doesn’t even know it’s my place,” he says with obvious delight. Groenewald is clearly confident of his chances in court in South Africa and the U.S. And he has reason to be: The criminal case against him in South

Africa has been frozen by a civil lawsuit filed by a game farmer named Johan Krüger, who lives nearby. The lawsuit challenges as unconstitutional South Africa’s ban on the trade of rhino horn, as well as most of the other rhino-related crimes that Groenewald is accused of.

“Johan Krüger,” Groenewald tells me, is “on the papers.” But Krüger, who is not implicated in any crimes Groenewald is charged with, is not the true plaintiff, Groenewald says, and is not the one paying the legal bills. “It’s me,” he adds emphatically. Krüger did not respond to *National Geographic*’s efforts to contact him, but there is reason to believe Groenewald. He and Krüger have been in the buffalo business together; they hunt together; Krüger’s photograph has appeared in Groenewald’s hunting brochures; and Krüger’s lawyer is also Groenewald’s lawyer.

The charges against Groenewald in South Africa are rooted in a September 2010 raid on Prachtig by South Africa’s Directorate for Priority Crime Investigation, an elite police unit known as the Hawks. Markus Hofmeyr, manager of veterinary services for South African National Parks, which runs Kruger National Park, was part of a team of forensic specialists brought in that day to tranquilize Groenewald’s rhinos and collect tissue and blood samples. His team located 29 live rhinos and darted 26 of them.

Hofmeyr submitted a sworn affidavit that described what he saw at Prachtig: “All the rhino we darted had their horns removed previously, some right down to the growing point. The horns on some rhino were clearly cut off with a chain saw or the likes.” Cutting a horn too close to its growing point can cause bleeding and, veterinarians say, can be painful. Hofmeyr speculated that some horns had been removed “by inserting a knife and separating the attachment area of the horn from the base of the skull or applying a large force and tearing the horn from the base.”

According to Groenewald, the Chinese “don’t like dehorned pieces,” so he cuts his rhinos’ horns down to just three inches from the skull.

Investigators also discovered several locations at Prachtig with the remains of burned rhino carcasses and skulls. Nineteen skulls were found, all





In Mozambique, near the Kruger National Park border, a coalition force of local police, wildlife officers, border guards, and rangers—supported by the International Anti-Poaching Foundation—arrests a man long believed responsible for arranging weapons and transport for rhino poachers.





Veterinarian Johan Marais prepares to try out a novel treatment—rubber bands used in human surgery—to close a gaping hole in this female rhino's face made in May 2015 by poachers hacking out her horn. Marais says that Hope—seen here a year later—will survive the attack. “She’s done extremely well,” he says. “She’s got this inherent feistiness.”

Lulah's mother was killed by poachers in Kruger National Park. She now lives at Care for Wild Africa, a sanctuary in Mpumalanga Province specializing in rhinos. Staff member Dorota Ladosz lives with her full-time and comforts her after surgery to repair wounds inflicted by hyenas before her rescue.

with their horns cut off. Six years later Hofmeyr is still haunted by the scene. "The thing that was most traumatic for me was seeing that pit with the dead rhinos in it," he tells me. "It's very likely he's going to get off the hook. That's an indictment of how sick our systems are."

Hofmeyr is sick about something more personal. He recognized rhinos on Groenewald's property as animals he'd helped capture in Kruger National Park. "[Groenewald] offered the best prices and there was no [criminal] conviction, so according to our tender laws we couldn't not sell to him." Selling wildlife to the private sector is one way the park has paid for special conservation projects, he says, and even though some rhinos are sold to safari outfitters to be hunted, they also have a chance to breed, increasing numbers overall. Indeed, breeding for big game hunting is widely credited with helping white rhinos come back from near extinction at the turn of the 20th century.

"It takes a long time to recover, takes a long time to trust people again," Hofmeyr says. "You think, Am I a part of this? I caught that animal, and I put it in that box." Hofmeyr focuses on the bigger picture—animals he's helped relocate to other destinations. "I would say 75 percent of them are still alive, and breeding. That, to me, ultimately is what makes it easier to accept these things."

Groenewald, who bought over 30 rhinos from Kruger, says the park charged him by the length of each adult bull's horn. "They *wanted* people to hunt them," he tells me.

Of the rhinos that wound up dead at Prachtig, Groenewald sold 39 carcasses to a local butcher.

He is clear about who is buying South Africa's rhino horns. With two index fingers he pulls back the corners of his eyes and says, "The people called me all the time. Because they want some horn. Some horn. Some horn. They don't get it from me? They'll get it from somebody else."

"Chinese guys or Vietnamese guys?" Brent asks.



"Both," Groenewald says. "If their eyes are like this, they in it."

OPERATION CRASH

In June 2011 the U.S. Fish and Wildlife Service received an email from Col. Johan Jooste of South Africa's Hawks requesting help interviewing several Americans who had hunted rhinos with Groenewald in South Africa. David Hubbard, agent in charge of the FWS's San Antonio, Texas, office, was given the assignment.

Hubbard knew Groenewald. Hubbard had



assisted in his arrest for shipping a stuffed leopard to the U.S. that had been shot in South Africa without a hunting permit. Groenewald's client, a plumber from Texas named Glenn Davey, had killed the leopard in 2006. But Groenewald hadn't had a leopard-hunting permit for that year, and according to his plea agreement his name appeared on a 2008 permit application instead. FWS agents arrested Groenewald in January 2010, when he happened to be visiting his brother, Janneman, who ran their hunting company's U.S. sales operations from

Autaugaville, Alabama. (Janneman has since returned to South Africa.) Groenewald pleaded guilty, was sentenced to time served (eight days), was ordered to refund his client \$7,500, and was fined \$30,000.

"How can they charge me for a leopard that was shot on my place?" Groenewald says, still seething. "I didn't steal it. I didn't shoot it on another guy's farm. It's mine."

The leopard was killed legally in 2008, he tells me, even though on page 13 of his 2006-07 company brochure there is a photograph of the

To Groenewald, you're not a poacher if you kill what's yours. For him, what is legal comes down to one question: When is a rhino mine?

Texas plumber holding the very same leopard.

Five years later, in 2011, Hubbard believed Groenewald was trafficking in wildlife again. Nearly a dozen American men who had gone on hunting adventures with Groenewald's company told Hubbard a similar story: They hadn't intended to hunt rhinos, but on their arrival at Prachtig, Groenewald had told them about a "problem" rhino that needed to be put down. Groenewald charged them an average of \$10,000—a fraction of the going rate for a legal rhino hunt. The Americans were allowed to photograph their kills, but rhino photos were all they were allowed to take home. Groenewald kept the horns.

Hubbard opened his own case, Operation Preposterous, which was rolled into Operation Crash (a group of rhinos is a crash), a multistate rhino horn-trafficking investigation launched by the FWS in 2011. Still active, Operation Crash is one of the agency's most successful investigations, connecting antique dealers, auction houses, a gang of Irish thieves known as the Rathkeale Rovers, a former associate in Pablo Escobar's Medellín cartel, and others to rhino horn trafficking in the U.S., Europe, Asia, and Africa. As of July 2016, Operation Crash had resulted in the conviction of 30 people, 405 months of prison time, and \$75 million in seized property.

Unlike most targets of Operation Crash, who trafficked old or antique horn, the Groenewald brothers are accused of killing rhinos. The U.S. Department of Justice charged the brothers with conducting 11 rhino hunts illegal under South African law, in violation of the U.S. Lacey Act, which makes it a crime to violate any U.S.

or foreign conservation law. On April 4, 2015, the department contacted South African authorities requesting their extradition. "Getting them extradited back to the U.S. is a high priority for the U.S. Fish and Wildlife Service," Chief Woody says.

But Groenewald appears to have stalled the Americans' case against him too. "At first we had great cooperation from South Africa," Hubbard says, recalling early communications with South African prosecutors to prepare for extradition. Then, he says, for some reason official communication between the South African government and the U.S. Department of Justice slowed. Among the reasons for delay, Hubbard speculates, is the Krüger lawsuit. (Citing "matters pending in court," South Africa's National Prosecuting Authority declined *National Geographic*'s request for an interview.) The lawsuit also appears to have stalled the prosecution of Groenewald's longtime associate Hugo Ras, a luxury safari operator and accused rhino killer, whose hunting clients have included Eric Trump and Donald Trump, Jr., sons of U.S. presidential candidate Donald Trump. Ras is accused of heading a 10-person rhino-poaching and horn-trafficking syndicate that killed rhinos using dart guns and lethal levels of etorphine hydrochloride, also known as M99, a regulated opioid that is up to 80,000 times more powerful than morphine.

'BUFFALO IS MY ANIMAL'

I climb into Groenewald's shining Toyota Hilux 4x4 pickup truck, with its bank of modified halogen headlights and luxury padded seat in the bed for viewing wildlife, and we go for a tour of his breeding estate.

South African game ranchers breed most anything a safari client will pay to hunt. In 2013 a buffalo named Mystery was sold to an investor group led by Johann Rupert, who controls the world's second largest luxury-goods conglomerate, Compagnie Financière Richemont SA, for a record \$4.1 million. In 2014 Deputy President Cyril Ramaphosa sold three white-flanked impalas as breeding stock for \$2.5 million, and this year an investor paid \$2.8 million for a quarter

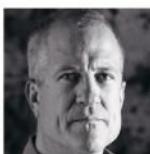
share in a buffalo named Horizon, putting its value at \$11.2 million.

Groenewald raises buffalo, impalas, rhinos, sable antelope, and wildebeests, along with Arabian horses. His antelope live with white PVC pipes on the tips of their massive, elegantly curved horns to protect them for market. He also breeds designer animals—highly desired genetic variants such as golden wildebeests, saddleback impalas, and black impalas—animals carrying recessive genes that result in unusual colors. It's a practice that puts wild populations at risk, according to the African Professional Hunters Association, which considers "color-variant hunting" unethical.

The buffalo is among the most dangerous mammals in Africa, but Groenewald drives his truck easily among his. "Buffalo is my animal," he says fondly. He clicks a button and another fence gate slides open. We approach a group of trophy-size bulls. "This one here is worth about six million rand"—\$400,000. Another is worth \$675,000. Instead of charging, the big males scamper about like happy sheep.

Groenewald's focus on the animals' worth was a reminder of what had taken me so long to understand: To Groenewald and many other South Africans, you're not a poacher if you kill what's yours. This idea is rooted in the country's pro-game ranching laws, which make wildlife the property of anyone who can fence it off. "Everybody knows I'm not a poacher," Groenewald tells me. "I believe that an animal like a rhino should be mine. I can do with that what I want, like any other animal—like a kudu or a buffalo. If I buy that animal, it belongs to me. If you want to shoot the rhino, it's my rhino; it's on my farm. If I want you to shoot it, you can shoot it."

For Groenewald what is legal comes down to a single question: When is a rhino mine?



Bryan Christy is chief correspondent of the National Geographic Society's Special Investigations Unit and a Society fellow. He starred in the National Geographic Channel's Emmy-nominated film *Warlords of Ivory*.

THE RHINO KING

John Hume owns more rhinos than anyone in the world. He's been breeding them since 1995, and today he has 1,300. An unlucky number, he tells me, as he takes a seat at his desk in the home office of his rhino ranch in Klerksdorp, a hundred miles southwest of Johannesburg. He'd like at least one more for luck, and he's checking his computer to see if he's had another birth.

I've heard you quoted as saying you'd buy rhinos from the devil if it would save them, I tell him.

"Well, if you look at my rhino lists, you'll see we have plenty of DGs," he replies. "Probably over a hundred rhino here come from Dawie Groenewald. I don't deny that. I have nothing to hide, and a lot of those rhino would have been dead today." (Hume has not been implicated in any of Groenewald's alleged crimes.)

Hume owns about a fifth of South Africa's privately held rhinos. Part of what makes the rhino special, Hume says, is that it is so "user friendly." This is a cattle ranch, he says. "You couldn't keep elephants here." Each week his staff tranquilizes 10 to 15 rhinos, assists them as they stumble around, trims their horns, gives them reviving shots, and sends the horns by armed guard to a secure facility. His rhinos each produce up to 4.4 pounds of horn a year, and the horns are cut every 20 months or so. He's been doing this for years and estimates he's amassed five tons of horn, which he hopes one day to sell legally for more than \$4,500 a pound: about \$45 million.

Although selling rhino horn is illegal, making money off live rhinos isn't, and Hume has been working to export live rhinos to Vietnam. Last fall he entered negotiations to sell up to a hundred rhinos to a company in Vietnam called Vinpearl, owned by Pham Nhat Vuong, Vietnam's wealthiest man. It's legal for a South



Brent Stirton was named Wildlife Photojournalist of the Year for "Rhino Wars," in the March 2012 issue. He won again for "Tracking Ivory," partnering with Bryan Christy. This is their third wildlife investigation together.

BY BA SEPITKOVA

A game rancher near Port Elizabeth who couldn't afford the high cost of protecting his rhinos from poachers sold this one to a more secure operation. The rhino, blindfolded and wearing earplugs to calm it, will be sedated and accompanied by a veterinarian during the 20-hour truck journey to its new home.

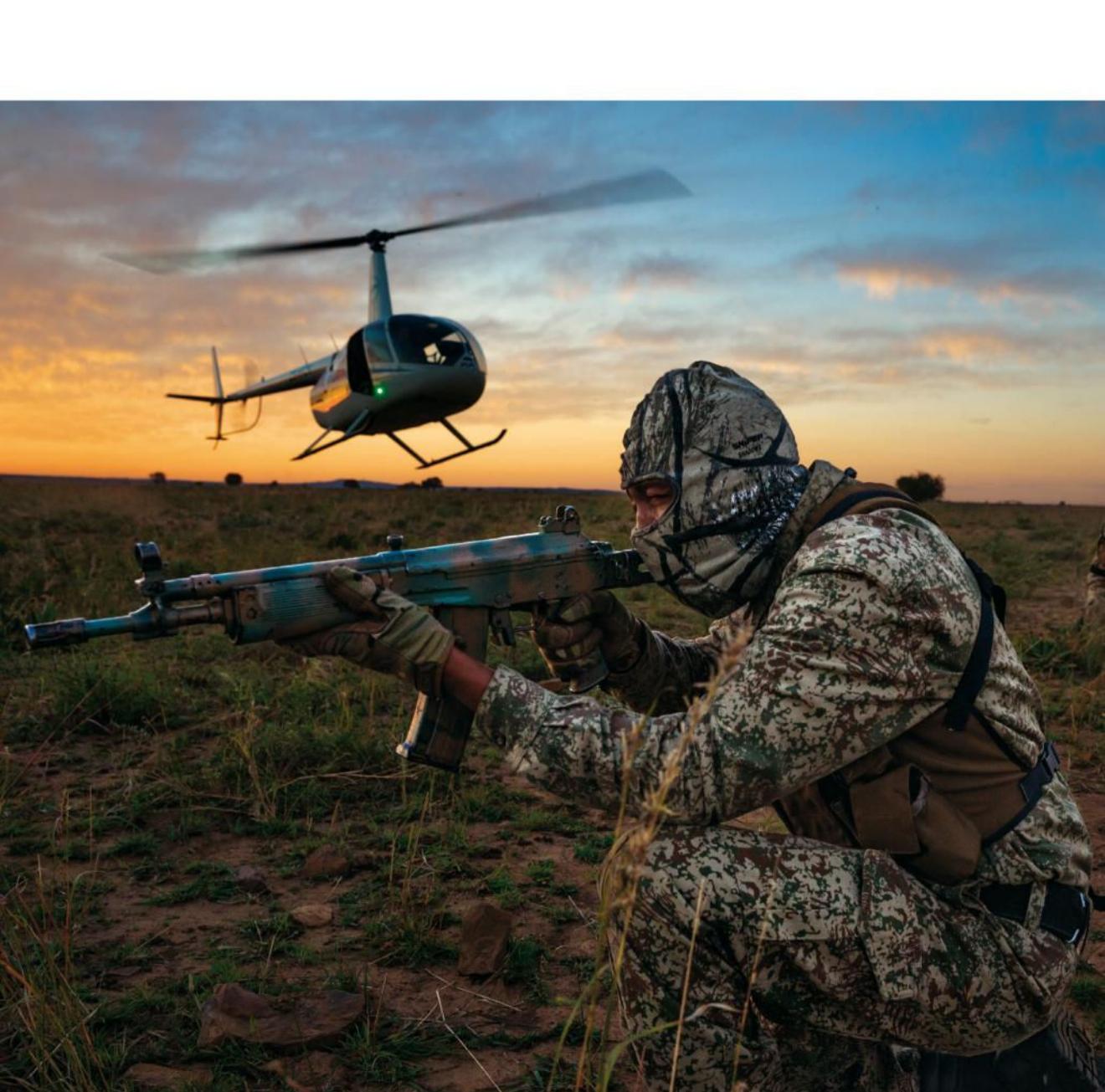




These rhinos at a feeding site on John Hume's ranch have recently had their horns trimmed. Unlike elephant ivory, rhino horn grows back when cut properly. Hume estimates that he has five tons in storage, which could bring him some \$45 million.







African to export live rhinos with government approval, but it's unclear what kind of life the rhinos would be headed to. According to Hume's farm manager, wild rhinos each need nearly a thousand acres, but Hume has a captive-breeding permit allowing him to keep one rhino per 7.5 acres as long as he provides them with supplementary food. Vinpearl's safari park, part of its five-star resort on Phu Quoc Island in the Gulf of Thailand, had allocated a fraction of that to a massive rhino-breeding operation.

On December 7, 2015, a representative from

Vinpearl, accompanied by the Vietnamese ambassador to South Africa, met with South African authorities to urge approval of Hume's export application. In a letter, the Department of Rural, Environmental and Agricultural Development for South Africa's North West Province stated: "Vinpearl intends to import at least 100 rhino, which will be kept on an enclosure of 15 hectares [37 acres]. Vinpearl aims to have the largest number of rhino in the world in a safari park/zoo, and wants to breed rhino." The government denied Hume's application.



A two-man security team deploys by helicopter at sunset for antipoaching duties on Hume's rhino ranch. Hume reckons he spends \$330,000 a month to operate the ranch, \$200,000 of which goes to keeping his rhinos safe. He has joined a lawsuit to lift South Africa's ban on rhino horn trading.

Seven months earlier Hume had taken his own initiative to get the 2009 domestic ban on rhino horn trading lifted when he joined Johan Krüger's lawsuit as a co-plaintiff—the same lawsuit Groenewald claims is secretly his. Hume relied on a simple technicality to make his case: The government, he said, had failed to adequately notify the public before implementing the ban, because it had failed to consult the world's top rhino rancher—him—before it enacted its moratorium.

Hume's case was heard on September 22,

2015, World Rhino Day. He won—good news for Groenewald—and the ruling has been upheld through two appeals. The government has filed a final appeal, and the ban remains in force pending the outcome.

Meanwhile Groenewald and Hume are both preparing to sell rhino horn. Groenewald tells me that shortly after the win in court last year, he brought a group of eight Asian men to inspect Hume's rhino horn stockpile. "It's like you take kids, five or six years old, and you put them in a Toys 'R' Us," Groenewald says.

But lifting the domestic ban is only half the rhino bosses' battle. Because there's virtually no market for rhino horn in South Africa, they need the international ban to be lifted too. And that's unlikely, since neither Vietnam nor China has indicated formal interest in legalizing the rhino horn trade. Hume's lawyer, Izak du Toit, tells me that in extreme circumstances law-abiding people may feel that they have no option other than to break the law as an act of civil disobedience. Private rhino ranchers, who are forbidden to sell their horn and whose staff and animals are under threat from poachers, may choose to trade their horn anyway. He draws a comparison to apartheid: "Black people had to transgress the very law they objected to in order to show it was illegal."

"Who cares what they do with it?" Groenewald says. "If they want to take it illegally out of the country, it's their problem."

Hume isn't bothered that rhino horn is snake oil when it comes to treating serious maladies. "I'm not ashamed that the rhino horn I make available to the world could possibly be ingested by somebody who's got cancer and he dies anyway. It's not going to help them. I have arthritis. I take at least six bloody remedies. And as far as I can see, none of them work."

What has worked so far, for Dawie Groenewald, is South Africa's legal system. When it comes to rhino horn, he hopes it works just a little bit more. "If they legalize it, I'm going to be the main man selling it." □





More than a million refugees arrived last year, many fleeing wars in Syria, Afghanistan, and Iraq.

THE NEW EUROPEANS

Hundreds of thousands more have come this year, as the continent's latest great migration continues to roil its politics, test its tolerance, and challenge its cultural identities.

"We are doing fine here, and we were well received," says Abed Mohammed Al Khader, 88, patriarch of a family of 16 that fled Syria two years ago, but "we want to go back." This past February they arrived in Berlin and were given shelter, with 1,500 other refugees, in a large gymnasium near the Olympic stadium.

The portraits in this gallery illustrate Europe's long and complex history of immigration. Algerians came to France while their homeland was a French colony, surging in the 1954-1962 war of independence. Since the 1990s some 40,000 Somalis fleeing civil war have settled in Sweden. Indians are among the three million South Asians who've come to Britain from former British colonies. About as many Turks live in Germany. They came as guest workers in the 1960s and '70s—but stayed and had families.

"We live here, we were born here, we have grown up here. But the place I feel in my heart is Turkey," says Ali Tecimen, 34 (back row, blue jacket). His grandparents (front) came to Germany in the 1970s as guest workers, when his mother (right) was a child. The family, including Tecimen's wife (left) and two children, lives in Berlin.





SYRIANS IN GERMANY



"Some people [here] like us, and some don't. Like Nazis say they don't want Arabs," says Obadah (left), 11. He's shown here with sister Bailasan, eight, and brother Amer, 10. Bailasan likes her school in Berlin; her teacher tells her she's smart. But her father is still in Syria, and she misses him.



"This is how I carried my daughter on our journey," says Mohammad Jumma, a janitor from Damascus, with 10-year-old Farah. When this photograph was taken in Berlin, his wife and son were stuck in Greece. Jumma wished for "a simple and normal life. And that this nightmare will end."



"The people here live in real freedom, and I can see that, and I am happy for them," says Akram Koujer, 53, about Germany. Koujer, an ethnic Kurd, left his home and his jeans factory in Syria because "my family and I were threatened. My son was a soldier, so he needed to kill or be killed."



"The Russian Air Force strikes around noon; the Coalition [U.S. and allies] strikes in the night," says Yasser, 36. His family, safe in Berlin, turns from the camera—nervous because a relative joined ISIS back in Ar Raqqah. Yet Yasser hopes to go home: "A person can't change his state of belonging."

ALGERIANS IN FRANCE

"The discrimination started at school; I was six or seven. It was during the Algerian war," says writer Patricia Fatima Houiche, 66. Her mother was French, her father (photograph) an Algerian independence leader. She has lived most of her life in France. Her children are there too. But she hopes to be buried in Algeria.



"I don't wear my veil all the time. I put it on when I leave the university and go to the mosque," says Ikram Chahmi-Gheidene, 23. Fleeing terrorism, her family came to Paris when she was eight. She feels at home and safe—but also wary, as suspicion of immigrants rises.



SOMALIS IN SWEDEN

"One reason why I like this country is the hospitality. They welcome the refugees with open arms," says Mohamed Ali Osman, 32, who joined his wife in Sweden in 2012. But, he adds, "in this country it is hard not having a job, and the main reason why this happens is language barriers."



"I see myself as a Somali and think I will always be a Somali. I came to Sweden to find peace. Sweden is a very good country," says Asad Abdiassiz Dahir, 16. In Mogadishu he was under pressure to join the militant Islamist group al Shabaab—so he fled. His family is still in Somalia.



In May 2015, 10-year-old Isra Ali Saalad came to Malmö from Mogadishu with her mother and two siblings. "The reason we came to this country is because it is safe," says her sister, Samsam, 19. Samsam's experience of Sweden has been all good, "only I've fallen short in learning the language."

INDIANS IN THE U.K.

"I was born here. I'm a true Londoner. I've always felt welcomed—if anything, I think my cultural heritage has earned me more respect," says schoolteacher Sharanjit Padda, 26. She wants immigrants to be accepted but also to accept British culture: "It's a give-and-take."





"I came here because my Sardarji came from India, to get an education for our children," says 92-year-old Nichattar Pal, speaking of her husband. Since she arrived in 1970, her London family has grown to include granddaughter Padda (opposite). "I am happy here, very happy."

TURKS IN GERMANY

"I feel Turkish and German and a human being and a lesbian. I have many cultures in me," says DJ Ipek

Ipekcioglu, who grew up in Berlin and lives there today. Germany still has trouble accepting the children and grandchildren of Turkish guest workers, she says: "We're working on it."



"I'm Turkish, and I'm living as a Turk. My home is Turkey. For me Germany is just a place to live. If it were up to me, I would return tomorrow," says Ali Riza Durmus, 72, who runs a small grocery in Little Istanbul in Berlin's Kreuzberg neighborhood. He has lived in the same house there since 1970.



In Europe, Germany has taken in the most refugees—and struggled the most with their impact on its culture.

By Robert Kunzig
Photographs by Robin Hammond

If you're European, and especially if you're German, you've been living for a year now through an unsettling public debate about what that identity means—and how people born elsewhere fit into it. In late August 2015, the tension over the influx of refugees from the Middle East had grown extreme. Seventy-one people were found dead, abandoned by traffickers, in a locked truck in Austria. Neo-Nazi hooligans attacked the police outside a shelter in Heidenau, near Dresden. When German chancellor Angela Merkel visited the shelter to show her support for the refugees, angry demonstrators greeted her with cries of "We are the people!" She was called a "whore," a "stupid slut," and a "Volksverräter"—a Nazi-era epithet meaning " betrayer of the people."

Five days later, on August 31, Merkel held her annual summer press conference in Berlin. Syrian refugees in Budapest were just then storming trains bound for Germany. As usual, Merkel was unflappable. Her government, she said, was now forecasting the arrival of 800,000 refugees in 2015. (It ended up being more than a million.) The German Constitution guarantees the right to political asylum, she reminded the press, and its first article reads, "Human dignity shall be inviolable." And indeed, many more Germans were honoring those promises and helping refugees than were hurling rocks and insults. "Germany is a strong country," Merkel said. "We have accomplished so much. We can do this!"

One day those words—*"Wir schaffen das!"*—may be on her tombstone. In the meantime they have helped make Germany the most compelling stage in a worldwide drama. For decades global



migration has been rising faster than population. In 2015, according to the United Nations, the world held 244 million immigrants—people living in a country where they weren't born. The number of refugees who'd been forced out of their birth country, 21 million, was higher than at any time since World War II. Scientists expect climate change to increase that number, through more frequent drought and rising seas; some say it contributed to the Syrian civil war, which triggered the current exodus to Europe.



Cultures cross paths and sometimes meet at a café at the Kottbusser Tor in Kreuzberg. Since the 1960s the Berlin neighborhood has been a haven for Turkish immigrants. Germany did little to welcome them—but as it faces a new wave of immigration, “we’ve learned our lesson,” says German State Minister for Europe Michael Roth.

The refugees are arriving on a continent that since World War II has become home to a third of the world’s immigrants. Europe’s major countries, which once sent their huddled masses to the United States, now have foreign-born populations comparable to that of the United States. But only some European minds and fewer European hearts have adjusted to that reality. Even in the U.S., which John F. Kennedy called “a nation of immigrants,” immigration is a divisive issue—and always has been. In the

1750s Benjamin Franklin worried that too many Germans were coming to Pennsylvania. He said they had a “swarthy complexion.”

Germans have a word for what Franklin was afraid of: *Überfremdung*, or “overforeignization.” It’s the fear that home will become unrecognizable, because there are too many strangers in it, talking in strange languages and behaving in strange ways. Most of us, if we look into our hearts, can probably at least imagine the feeling. In Germany this past year

it has been on fiery display. There have been large nighttime rallies and flaming rhetoric by right-wing orators in Dresden and Erfurt. There have been hundreds of attacks on refugee shelters, most still empty—although just days before Merkel's press conference drunken thugs lobbed a Molotov cocktail into a child's bedroom at a shelter in Salzheimendorf, near Hanover.

And yet: Quieter but no less vivid, against the backdrop of Germany's history, were the flutterings of the better angels. Three-quarters of a century ago Germans were dispatching trains full of Jews to concentration camps in the east; now, at the Munich train station, they were greeting trains carrying Muslim refugees with

Hamburg had to accommodate 35,000 refugees last year, half as many as the U.S. takes from the world.

food, water, stuffed animals, and smiles. On one German podcast I began tuning in to last fall, I heard a journalist from *Die Zeit* tell her listeners it was all right to feel "drunk" with pleasure at that transformation. To which another journalist retorted: The hangover is coming.

"The European Union is in a very, very fragile state," Michael Roth, Germany's state minister for Europe, told me in April. "I hope people are aware of that." The surge of refugees, along with Germany's inability to persuade the rest of the continent to follow its open-armed lead, was a major reason for that fragility—and the whole world became aware of it on June 23, when the British voted in a national referendum to leave the EU. The refugees weren't directly at issue—Britain has scarcely admitted any—but polls showed that reducing immigration, from both inside and outside the EU, was the main motive for the "Brexit" vote.

What happened in Britain, and the swelling populist opposition to immigration in other countries too, only raises the stakes of what's happening in Germany. Can Germans really grow out of their heavy past to become a *Willkommenskultur*—a culture that welcomes others? If so, then in a world increasingly full of both immigrants and xenophobes, there might be hope for us all.

IN THE MID-1970S, when I was in high school at the German School of Brussels, Belgium, a man named Volker Damm was my social studies teacher. (Though I'm American, my father was frequently stationed in Europe, and I attended

German schools until college.) Tall, with curly blond hair just receding at the temples and a chiseled face that belied his gentle, empathic manner, Damm was one of the cool teachers at the school. In his class I first understood about the Holocaust—he filled one memorable period by reading aloud from graphic eyewitness accounts of the concentration camps. Born

in 1939, Damm was just six when the war ended. His father, also a schoolteacher, had been the Nazi Party leader in a little village in the German state of Hesse, but I did not know that back then.

We hadn't been in touch in nearly 40 years, but Damm wasn't hard to find; a local paper had reported on his volunteer work on behalf of crime victims. We began corresponding, and I learned that in his retirement he was also tutoring teenage refugees, tens of thousands of whom have arrived alone in Germany. Damm invited me to visit Rotenburg an der Fulda, a Hessian town of more than 13,000 near the center of the country, where he'd spent most of his teaching career. So far the town was handling the refugee situation rather well, he said.

And so on a rainy morning last winter, Damm and I climbed the worn wooden stairs of the 16th-century town hall to the office of another

former student of his, Mayor Christian Grunwald. Rotenburg is a pretty town; ancient, half-timbered houses cluster around the market square and along the Fulda River, next to the palace and its park. Outside Grunwald's tall office windows, the bells from the Protestant church confirmed our punctual arrival at nine o'clock. Southeast of town, at Alheimer Kaserne, an army base high above the gentle valley, 719 Syrians, Afghans, Iraqis, and other refugees were starting another day.

Grunwald is a fast-talking, thoughtful, slim 39-year-old with short, sandy hair, black glasses, and a ready smile. Since being elected five years ago, he has been trying to pump energy and business into the empty storefronts of his town. But the refugees, he quickly admitted, weren't what he had in mind. When the state of Hesse informed him in early July 2015 that hundreds would be arriving on August 3, "the news exploded like a bomb," Grunwald said.

Some 700 people filled a college auditorium for a town meeting. There they learned from state officials that the Alheimer Kaserne, which the army had spent 40 million euros renovating, then decided to close, would become an *Erstaufnahmeeinrichtung*—a facility where refugees would be housed for their first few months in Germany, while they would wait to apply for asylum and permanent housing. Hesse's main facility in Giessen was bursting, the officials said. People were sleeping in tents outside.

Inside the Rotenburg hall, the mood was testy. Who's going to pay for this? somebody asked. Will the refugees be allowed off the base? asked another. Are they contagious? "The fears were in the air," Grunwald said. "But no one dared get up and say, I'm afraid; I don't want this!" No one, he added, using a common German expression, wanted "to be sent to the Nazi corner."

Thomas Baader, a state nursing care manager, got the call from the Hesse Social Affairs Ministry in late July, asking him to run the new refugee facility. He arrived on Wednesday, July 29, and in lieu of an office was handed a cell phone. The first refugees were due Monday. Baader called Grunwald, who sent two workers

and then came himself. He and Baader set up and cleaned the tables and chairs in the cafeteria. "Two days later there were 600 people out front," Baader said.

IT WAS ALL A MAD RUSH—and yet it has gone remarkably well. Elsewhere things were tougher. "No one was prepared, no one in Germany," Anselm Sprandel, Hamburg's refugee coordinator, told me. The city had to accommodate 35,000 refugees last year—half as many as the entire U.S. takes from the world. "We never really had homelessness, where masses of people were sleeping outside. But it was close." Sprandel's staff placed people in bankrupt home-improvement stores, in stackable modules made from shipping containers, and in heated tents. In Berlin many refugees were housed in school gymnasiums or in a hangar at Tempelhof Airport. Only plastic partitions separated one family or group from another.

In Rotenburg, Baader walked me down long, clean corridors in the three-story barracks, past rooms once shared by soldiers and now occupied by single families. Though refugees are assigned and transported to specific facilities—Hesse gets 7.35890 percent of them, according to a federal burden-sharing formula—the day before my tour, an Iraqi family of six had found its own way to the Rotenburg base. "Word has gotten around about where things are nice," Baader said.

The refugees have become a fixture on the streets of Rotenburg. You see them slogging uphill toward the army base, pushing strollers and old bicycles and carrying plastic bags. Besides room, board, donated clothing, and other in-kind benefits, they receive monthly allowances of up to 112 euros per adult and 63 euros per child. (The euro has lately been fluctuating around U.S. \$1.10.) "The money they're given, they spend here in town," said Frank Ziegenbein, proprietor of the Landhaus Silbertanne, a local hotel. "Otherwise you could just turn out the lights in Rotenburg"—an exaggeration, but Grunwald confirmed that the refugees have been an economic plus.

That doesn't keep some Rotenburghers from





Last winter some 2,000 refugees from the Middle East—including Zainab, 55, a Syrian Kurd traveling with her son—were given shelter in a hangar at Tempelhof, a Berlin airport closed in 2008. In Berlin and other cities, many refugees have spent months in such shelters, waiting to apply for asylum.

objecting, especially on Facebook. Grunwald rattled off ways in which refugees run afoul of the German sense of order. They leave trash in the park; they ride bikes on the sidewalks.

And then there is the fraught matter of toilet hygiene: Many refugees, used to Asian-style holes in the floor, don't like to sit. Grunwald climbed onto his chair and squatted to help me visualize the problem. At a refugee center in Hamburg I met a couple of maintenance workers carrying toilet seats, who complained that the seats are constantly breaking. At the Rotenburg base, where I saw a bored refugee voluntarily sweeping the sidewalk, all bathrooms are cleaned by German contractors—to make sure

What's been most surprising is how many Germans have chosen to invest personally in helping the refugees.

it's done right, Baader said. I watched one crew zip themselves into disposable body suits, with hoods and masks, to clean the kindergarten.

In bathrooms and beyond, Germans and refugees face off across a cultural gulf that for now is usually unbridged by a common language. "The understanding for the emotions and thoughts of the other—we're just at the beginning," Grunwald said. "If we could have a better exchange on that, then I'm convinced we can achieve something historic." He wasn't a big fan of Merkel's before, he said, and didn't choose this problem. Now he's all in.

WITH A FEW GLARING EXCEPTIONS, the German civil service has responded as expected to the crisis, which is to say, well. What's been more surprising is how many Germans have chosen to invest personally in helping the refugees.

In the Lower Saxon town of Duderstadt,

I met a graphic artist and sometime DJ, Olaf Knauft, who last year took in two teenage Eritrean boys. One day, he explained, he happened to meet a woman from the local youth agency who told him about the great need for sponsors and homes for all the unaccompanied minors. Knauft is 51, and his own two children, whom he raised alone once they were teenagers, have left the nest. He was nervous about living with a foreigner—and about how it would look for a single man to take in a boy—but he decided to take a chance on an 18-year-old Eritrean named Desbele, a Coptic Christian.

The two got on well—so well that three weeks after Desbele arrived in May, he confided to

Knauft that he had a 16-year-old brother, Yoisef, who was stuck in Libya. Desbele was in touch with the smugglers. It would take 2,500 euros to get Yoisef to Germany. Knauft gave Desbele the money. In July he and Desbele managed to find Yoisef along a highway outside Munich, where the smugglers had dumped him.

Now Knauft has two new teenagers. And though he sometimes has to fuss about turning out lights, washing dishes, and who's boss, he has no regrets. He calls Desbele and Yoisef "my children." A few days before I met him, it had emerged that Yoisef had a twin, in prison in Eritrea. Knauft had paid 1,500 euros to get him out of jail and into Sudan, where he was waiting to cross the Sahara. This was definitely the last brother, Knauft said.

He and I were sitting with Karin Schulte, a retired teacher who tutors Desbele and Yoisef in German three times a week, pro bono. The boys attend vocational school, in a special class for immigrants, and after school they come sit in Schulte's kitchen. She gives them coffee and cookies—because afternoon coffee is part of being German too. One day, after hesitating for a long time, she told the boys that in Germany it isn't customary to slurp your coffee loudly. Yoisef admitted that according to his grandmother

it wasn't customary in Eritrea either.

In Rotenburg a group of retired teachers from the Jakob-Grimm-Schule, where Damm taught for decades, have organized German courses in the Erstaufnahmeeinrichtung. One morning I spent a couple of hours there with Gottfried Wackerbarth, a friendly white-bearded bear of a man. Because the population of the base changes every month or two, Wackerbarth had no idea whom he'd be teaching that day. Five male Afghans, ages 12 to 35, followed him out of the sea of eager faces. Wackerbarth would be teaching them the alphabet with pictograms—*B* is for *Banane*, *E* is for *Elefant*, and so on.

Next to me sat Sariel, 35, a small man in a black down jacket; it was chilly in the room. It quickly became apparent that Sariel wasn't literate even in Dari. The boys in the class scooted ahead of him in the exercises. As I watched him copy letters stroke by stroke, like drawings; as I helped him spell "mama" and "papa"; as I imagined having to learn the opaque squiggles of Dari that one of the boys wrote on the blackboard, under *Auf Wiedersehen*, I felt tired on Sariel's behalf—not for his long road from Afghanistan but for the longer road ahead.

In this class the students were just getting a first taste of German—and a first exposure to a sympathetic native. "When you run into them in town, they say, 'Hello, teacher!' and are so happy that you recognize them," Wackerbarth said. In Rotenburg one afternoon I met a 43-year-old Syrian man who'd been in Germany for two years and had completed a six-month language course. Sitting in his living room, eating cake his wife had made, we had to speak through an Arabic interpreter. At his age, he admitted, he wasn't much of a student.

Ahmad—like many refugees he was afraid that revealing his last name might get relatives back home in trouble—had been an electrician in Damascus. Egypt, where his family fled first, had made them feel unwelcome. Germany had given them asylum, welfare, and this apartment in the center of Rotenburg. He was deeply grateful. But after two years he still had no work, and that was almost unbearable.

"I go to the supermarket, I take my son to school, and otherwise I don't go out," he said. "Because I'd be ashamed if someone were to ask me what I do. I sweep a lot in front of our door, just to be doing something." He asked whether I thought a nearby retirement home might let him clean for free. He showed me some German language exercises he'd gotten from the Internet.

Listening quietly were Ahmad's three sons, ages 16, 14, and eight. They'd been in German schools for a year and a half; the two oldest attend the Jakob-Grimm-Schule. Their German was good. The eldest had slickly coiffed hair and wore a tight white T-shirt that said "Paris" in French and Arabic—in solidarity with the victims of the November 2015 attacks, he said. He was hoping to become a hairdresser and was interning at a salon down the street. The 14-year-old said he might stay in school a little longer; his teacher told him he writes better than a lot of the Germans. He's the center forward on the soccer team.

SINCE WORLD WAR II, Germany has received roughly 50 million immigrants. One in eight people living there today was born elsewhere. And yet when Angela Merkel said publicly, on June 1, 2015, that Germany was an *Einwanderungsland*—an "immigration country"—the *Frankfurter Allgemeine* newspaper called the statement "historic." For decades Merkel's Christian Democratic Union (CDU) had rejected the description, preferring the Germany of its dreams. "We were an immigration country in denial," said Martin Lauterbach, who directs an integration program for the Federal Office for Migration and Refugees, known by its German acronym, BAMF.

The early immigrants were ethnic Germans, some 12 million of them. Driven out of Eastern Europe at the end of the war, they arrived in a bombed-out and destitute country. German or not, they were often unwelcome. Erika Steinbach, a CDU representative in Germany's national parliament from Frankfurt, tells of fleeing what is now Poland with her mother and baby sister and arriving on a farm

A HAVEN IN EUROPE

Fleeing war-torn lands in search of safer, better lives, people have been leaving their native countries and entering Europe for decades. These waves of humanity have helped shape the character of modern Europe. The continent's most recent challenge comes from the unprecedented numbers arriving in 2015 from Syria, Afghanistan, Iraq, and African countries. Many of these refugees seek asylum, a protection under international law, meaning they cannot be expelled to face the dangers they left behind.

INTENT ON GERMANY

Chancellor Angela Merkel's welcoming statements last year encouraged nearly two-thirds of people escaping from conflict to name Germany as their desired destination, especially those from Syria and Afghanistan.

Refugee Population

Growing year over year, the refugee population within the European Union and Schengen regions swelled to more than 2.5 million by the end of 2015.

Country's portion
13%

All refugees within EU and Schengen countries

Major Routes to Europe, 2015



European Unity, 2015

- European Union member
- Schengen border-free area* (free movement of people between countries)

*Includes Iceland (not shown)

The U.K. voted to leave the European Union on June 23, 2016.

3%

NORWAY

Oslo

1.2%

DENMARK

29%

GERMANY

Berlin

4.6%

NETHERLANDS

Amsterdam

2.8%

BELGIUM

Brussels

13.2%

FRANCE

Paris

4.2%

LUXEMBOURG

Luxembourg

<0.5%

LIECH. AUSTRIA

Bern

<0.5%

SWITZERLAND

Bern

<0.5%

SLOVENIA

Ljubljana

7%

ITALY

Rome

200

0 mi

200

0 km

Zuwarah

Tripoli

Al Khums

Includes Iceland (not shown)



in Schleswig-Holstein. “The farmer said to my mother, when she needed milk for my sister, ‘You all are worse than cockroaches,’” Steinbach said. “There was not a lot of warmth.”

There was even less for the Turks. In the 1950s and ’60s, with the economy booming, West Germany needed workers. It recruited them first in Italy, then Greece and Spain, but in greater numbers from Turkey. Mostly men came alone and worked in factories or construction. They shared rooms in barracks or dorms. There was no expectation at first on either side that they’d stay—they were *Gastarbeiter*, guest workers, not immigrants. They would rotate back to Turkey after a year or two, taking the money they’d

Turks, however, was the consistent note of ambivalence toward Germany.

“To be a ‘guest’ in a country for decades—that’s insanity,” said Ayşe Köse Küçük, a social worker in Kreuzberg, the Berlin neighborhood where many Turks settled. She came to Berlin when she was 11 and has lived there 36 years. She still doesn’t feel accepted, and her children don’t either. “My children, whom I never told, ‘You are Turkish,’ started saying, ‘We are Turks,’ after fourth grade,” she said. “Because they were excluded. That hurts me.” And yet Kreuzberg is her beloved home.

“We came as workers, and as workers we’re integrated, but not as neighbors and fellow citizens,” said Ahmet Sözen, 44, who was born in Berlin. He can’t fully integrate, he explained,

into a society his father doesn’t belong to. In Bebra, on the other hand, everybody knows one another, and Turks stage an annual cultural festival in the town square, Fatih Evren said; integration has worked. Still, although he was born and grew up in Germany and has many German friends, he expects to be buried in Turkey.

Feeling fully accepted in Germany has never been easy, even for some Germans. Christian Grunwald’s maternal grandparents were refugees—ethnic Germans from northern Serbia who ended up in Rotenburg after the war. His mother told me the story one afternoon at the Alheimer Kaserne. We were in the old guardhouse, surrounded by jail cells full of donated clothes; Gisela Grunwald coordinates a Red Cross operation that supplies clothing to today’s refugees.

Gisela’s mother is in a nursing home now, she said. Her ancestry is German, she has lived in Rotenburg for 65 years, her grandson is the popular mayor—and still, Gisela said, one day not long ago “someone came to her and said, ‘You’re not German.’” It seems she hadn’t quite shaken the accent she’d brought along with her from Serbia.

Germany's labor agency estimates that half the refugees will still be unemployed after five years.

saved. Other “guests” would take their place.

That was the idea, but reality intervened. Employers didn’t want to lose workers they’d trained. Lonely workers imported families. Fatih Evren’s father brought his wife and three children—and then had Fatih in Germany. “After a certain time he settled down,” Evren said. “Making good money in Germany was fun.” In Bebra, a working-class town five miles down the road from Rotenburg, Evren is now secretary of the Turkish-Islamic community center and mosque that his father helped found in 1983.

The guest-worker program was shut down in 1973, when the Arab oil embargo triggered a recession. But today there are nearly three million people of Turkish descent living in Germany. Only half are German citizens. Some have ascended to prominence—such as Cem Özdemir, co-leader of the Green Party. What struck me about the conversations I had with ordinary

GERMANY HAS LEARNED from the experience with Turks and other immigrants. Over the past 16 years it has relaxed its citizenship laws. Until 2000 you generally had to have German blood—at least one German parent—to be a German citizen. Now if you've been a legal resident for eight years or were born to such a parent, you can become a citizen—and in some cases keep your other nationality too.

What's more, under a law passed in 2005, the German government now gives integration courses—a minimum of 600 hours of language instruction and 60 hours on German life—to people granted or likely to be granted asylum. Even as the BAMF hires thousands of new staff to process a backlog of hundreds of thousands of asylum applications, it's investing more than half a billion euros this year in integration programs. The agency estimates that 546,000 people will take the course in 2016.

At the center of German politics there's now a consensus that the country needs immigrants. Deaths exceed births in Germany by nearly 200,000 a year, and that number is rising. Without immigration, the population would be shrinking. The Berlin-Institute for Population and Development, a think tank, estimates that to keep a constant working-age population—the people who finance pensions for the growing pool of retirees—Germany would need a net immigration of around half a million a year through 2050.

But many of the refugees aren't the trained labor the country needs—or even prepared to enter its famous apprenticeship programs. Estimates suggest that upwards of 15 percent are illiterate. Many of the others aren't educated to German standards.

At a vocational school in Bad Hersfeld, near Rotenburg, I visited four classes of immigrants who were being given two years to gain the language skills and knowledge needed for a 10th-grade diploma, which might then lead to an apprenticeship. Most were old for 10th grade. In one class I recognized Mustafa, a sad-faced 17-year-old Afghan I'd met the day before at the home for refugee boys, run by the Stiftung

Beiserhaus, where Damm tutors. Mustafa had told me how glad he was to be in Germany, not only because he was safe now but also because he could go to school; in his little village in Afghanistan, where he'd tended sheep and donkeys, he'd been taught only the Koran.

Most immigrants at the Bad Hersfeld school, said director Dirk Beulshausen, "see it as a gift that they're allowed to learn. Many Germans see it as a duty, and duty is always bad." There's a limit, however, to what even a great willingness to work can achieve. One social worker there, Joanna Metz, guessed that nearly half the immigrants in the program might fail to earn a diploma. "The problem is they have an unbelievable amount to catch up," she said. "Basically they need 48-hour days."

The refugees who are young enough to adapt quickly, like Ahmad's children, are likely to be a net economic plus for Germany. For the refugee population as a whole, it's too early to say. The Federal Labor Agency estimates that half the refugees will still be unemployed after five years, a quarter after 12.

The argument for taking them in, though, was humanitarian, not economic. Much of the public remains unconvinced. The few people who are willing to throw Molotov cocktails at refugee shelters or obscenities at the chancellor are just the tip of an iceberg of peaceful and mostly silent Germans who in their hearts don't want so many immigrants in Germany, especially Muslim ones.

A LARGE MAJORITY OF Germans accept immigration and Islam intellectually, said political scientist Naika Foroutan of the Berlin Institute for Integration and Migration Research—but emotionally, not so many. Foroutan's team surveyed 8,270 German residents in 2014, before the Paris or Brussels attacks or the surge in refugees. They found that nearly 40 percent believed you can't be German if you wear a head scarf. Forty percent would limit the construction of conspicuous mosques. More than 60 percent would ban circumcision, an essential ritual in both the Islamic and Jewish religions. Finally,

some 40 percent believed that to be German you must speak German without an accent. (Gisela Grunwald's mother must have met one of those.)

Even before the terrorist attacks, even before a bizarre series of incidents outside the Cologne train station on New Year's Eve, when immigrants, more than half from North Africa, harassed and molested hundreds of women, many Germans perceived Muslims as a threat. That feeling has fueled the resurgence of the political right. "I don't believe such a mass of people can be integrated," said Björn Höcke of the Alternative für Deutschland (AfD), the populist party that after elections in March is now in half of Germany's state legislatures. Höcke leads the delegation in the eastern state of Thuringia. Immigration, he thinks, has undermined the "community of trust" that once existed in Germany. The AfD, he has said a little menacingly, is "the last peaceful chance for our country."

Höcke scares and disgusts many Germans. "Good God!" Damm exclaimed, when I mentioned I was going to see him. In person, Höcke is cerebral and almost mild; a few years ago he was a history teacher. But when he strikes the mystic chords of nationalism at the AfD rallies in Erfurt, when he leads the crowd on the cathedral square in chants of "*Wir sind das Volk*"—We are the people," meaning the German one that Merkel is allegedly trying to "abolish" with immigration—it reminds many Germans of the Nazis. "Sportpalast, 1943," said Christian Grunwald, referring to an infamous speech by Joseph Goebbels.

Yet many Germans share at least some of Höcke's unease—and a spate of attacks by refugees this past summer only increased it. In county elections in Hesse last March, one in eight Rotenburg voters chose the AfD; in state legislative elections in Saxony-Anhalt the following week, it was one in four. It would be hard to shove that many people into the Nazi corner. What are they afraid of?

In a word: *Parallelgesellschaften*, or "parallel societies." "The parts of cities where you wouldn't know you were in Germany," as Höcke puts it. The term is a bogeyman even among moderate Germans. To an American, it may

evoke a more benign image—of a Chinatown or a Little Italy or even one of the hundreds of Little Germanys that once existed in the U.S. Why can't Germans take in immigrants now, in the same spirit? I put the question to Erika Steinbach, who, in spite of being a former refugee herself, has been a controversial critic of Merkel's policy from the right flank of the CDU.

"I don't want that," she said simply. "We should preserve our identity." Steinbach limned the threat with anecdotes. Her secretary in





On the eve of her wedding in Berlin to Serkan Çavan, bride Gözde Sakallı celebrates a traditional Turkish “henna night,” during which bridesmaids dance and sing sad songs, and her future mother-in-law colors her palm with henna to foreshadow her loss of virginity. Some 93 percent of German Turks marry other Turks.

Berlin had been groped at the train station by a man she “could tell” was a refugee. Her hairdresser’s son in Frankfurt was one of only two native Germans in his elementary school class. A CDU staffer there said that gangs of immigrants walk down the main shopping street belching in people’s faces. “My goodness,” Steinhach said. “What is it all leading to?”

By the time I talked to her, I had met some of the new faces of Germany. There was Ahmad, sweeping in front of his door in Rotenburg.

There were the two boys at a shelter in Berlin, who cry themselves to sleep, their father Mohamad told me, when they can’t reach their mother back in Damascus. There was Sharif, a restaurant owner from Aleppo, who saw Germany as a last chance; his kids hadn’t been to school since the fighting began in 2011.

And then, at the same gym in Berlin, there was an anguished 20-year-old, visibly pregnant, her face a smooth oval framed by a white head scarf. Soon after she started talking, she burst

into tears—at how much she missed her family in Syria, at how kind the Germans were, but also at how scared she'd been one night when an angry crowd of them gathered on the street outside. If she could, she said, she'd tell those Germans she wasn't there to take anything away.

The hate was appalling, but I could understand the apprehension many Germans feel. Even Ahmad could. "Germans are right to be afraid for their country," he had told me. "Germany is used to security and order. People are afraid that will change." But the encounter with him and the others had affected me. I asked Steinbach whether she'd had any personal contact with refugees.

"No," she said.

A large majority of Germans accept immigration and Islam intellectually. But emotionally, not so many.

HOSTILITY TOWARD immigrants in Germany has been strongest where the fewest of them live, in the former East German states. They remain poorer than western Germany. The widening gap between rich and poor people in the country as a whole may also promote anti-immigrant sentiment—and yet there's no material basis for angst about the refugees, said Naika Foroutan. The German economy is strong, unemployment is low, and the government ran a 19.4-billion-euro surplus last year. Germany could afford to integrate the refugees while still investing in infrastructure to benefit all Germans. "It's not a real panic," Foroutan said. "It's a cultural panic."

Foroutan, 44, whose mother is German and whose father is a refugee from Iran, puts her hope in education. "You can educate people to see integration as self-evident," she said—just as Germany has tried, with limited success, to

stamp out anti-Semitism. Since World War II a generation of hardened anti-Semites has died, and new generations have grown up confronted by television and also in school, by teachers like Damm, with what the Nazis did. Foroutan's survey suggests a similar change is under way with respect to immigrants. Young Germans are much more likely to accept circumcision and mosques.

But the refugees have arrived in a country that's still groping for a new identity—"a new German 'we,'" President Joachim Gauck called it in a 2014 speech. That more inclusive "we," Foroutan said, is part of what it means for Germany to be modern: open to the world and to change. German conservatives, however, aren't the only ones resisting that vision; many Muslim immigrants aren't exactly open and modern either. Some 30 percent of them, according to a 2013 survey, are fundamentalists: They believe that Islam should return to its seventh-century roots and that its laws take precedence over secular ones. At the Mevlana

Mosque in Kreuzberg I met a bearded young teacher, Serkan Özalpay, who spoke, as other Muslims did, of the hostility he gets from Germans. Sometimes, when he passes in his turban and ankle-length robe, they spit. Then Özalpay surprised me by talking like the AfD. "The refugees don't belong here," he said. "Muslims don't belong in this country." He tells his flock to go back to Turkey if they can, that it's just too hard to live by the Koran in Germany.

One precept that brings traditional Muslim men into conflict with Germans, whose constitution guarantees equal rights for women, is their rule against shaking hands with one. Another is their intolerance of homosexuals. In a studio in Neukölln, the day after I met Özalpay, I shook hands with a different kind of Muslim—a chain-smoking, vocally lesbian DJ named İpek İpekçioğlu. She grew up in the Berlin that he considers godless, and she loves it.

She didn't always. When she got out of high school, she said, her German was poor and she had no emotional tie to the country. She took an au pair job in London, unsure when she'd come back. Then one day she happened to pull a book of Goethe's poems off the shelf.

It was the *West-Eastern Divan*, in which the famous poet—famous also for his *Weltoffenheit*, his open-to-the-world-ness—celebrates Islam. The poems spoke to İpekçioğlu. “Man,” she remembers thinking, “this really is a beautiful language.” She went back to Berlin. Now, besides performing at clubs around the world, she sometimes speaks abroad for the Goethe-Institut—a representative of the new Germany.

The old Germany, İpekçioğlu said, has a lot going for it—Goethe, for example—but it still “has a fundamental problem saying, I'll open my culture and allow it to change.” Once not long ago she was doing her thing on a stage in Leipzig, spinning her Anatolian house music; the dance floor was packed. A guy came up to her and demanded she play “German” music. So she dialed up the ethnic even more.

She wanted him—and all of Germany—to get the message: “We're here. We're not going back. We're going to shape the city to fit our lives.”

FEAR OF OTHERNESS is something we all have,” said İpekçioğlu. “It's not just Germans.” But Germans not so long ago carried that fear to its most vicious extreme. As a result, many of them still feel its reflection: fear of themselves.

“If I'd been old enough back then, I feel sure I would have been in the SS,” Damm told me in the car one day. “I just hope I wouldn't have been a camp guard.”

“The ice is thin,” said Gerd Rosenkranz, a political analyst in Berlin, speaking of the rightward lurch in German politics. “We can still break through. And beneath it lie the old days.”

On November 9, 1938, when Kristallnacht, or the Night of Broken Glass, came to the rest of Germany, it had already come to Rotenburg and Bebra. The mobs there had shattered the windows and trashed the houses of the Jews two nights earlier. Goebbels himself praised the

region, said Heinrich Nuhn, a former history teacher and colleague of Damm's. Nuhn maintains a small museum dedicated to the lost Jews of Rotenburg in a house on the Fulda that was once the women's mikvah—the ritual bath.

One afternoon Damm and I went to the Bebra town hall to call on Uli Rathmann, 56, a muscular man with close-cropped hair who directs the town's kindergarten and youth programs. Rathmann grew up in a village nearby, where he never saw an immigrant—a “parallel society,” he now calls it. When he became a social worker in Bebra, he started working with immigrants all the time. Now he feels that if Bebra were to become 90 percent foreign, so what?

Toward the end of our conversation Rathmann took me to the window to look down on the semicircular brick wall that bisects the town square. He pointed out the bronze plaque that lists the names of 82 Jews from Bebra who were murdered in the camps. A smaller plaque commemorates the vanished synagogue.

“It's an exciting time in Germany,” he said, as we returned to the subject of refugees. “I have to say, I was overwhelmed by the tremendous willingness to help that Germans showed. And it really still hasn't ebbed.”

Damm, who had been listening quietly, jumped in. “It's the first time in my life...” He stopped, excused himself. I looked over at my old teacher; his eyes were teary. “It's the first time in my life,” he went on, “that I can say I'm proud of Germany.”

I looked back at Rathmann. His eyes were glistening too. We talked about how hard it had long been for Germans to feel a healthy national pride, one that transcended World Cup soccer but didn't feel strutting and dangerous. Maybe, Rathmann said, Germans could be “proud that we took in the refugees.” Maybe pride comes from “lived democracy,” from the feeling that “this is my country, I'm going to move my ass and do something for it.” He turned to his computer to look up the number of someone he thought I should talk to, a guy who had helped him lay the floor at the new youth center. It was Fatih Evren, over at the mosque. □

I, TOO, AM AMERICA

A dazzling new museum in the nation's capital and its eclectic collection show the personal side of the suffering, perseverance, and triumphs of African Americans.



AMBROTYPE OF FREDERICK DOUGLASS This portrait of one of the most famous abolitionists, orators, and writers of the 19th century will be on exhibit in the museum (above). The former slave was the era's most photographed person. Understanding the power of images to convey dignity and alter how African Americans were seen, he frequently sat for portraits.



ALL ARTIFACTS FROM THE COLLECTION OF
THE SMITHSONIAN NATIONAL MUSEUM OF
AFRICAN AMERICAN HISTORY AND CULTURE



DRESS SEWN BY ROSA PARKS The civil rights activist and seamstress refused to give up her seat on a segregated bus to a white man. Her action launched the Montgomery, Alabama, bus boycott in 1955, a turning point in the civil rights movement. When she was arrested, she was stitching this rayon frock.

GIFT OF THE BLACK FASHION MUSEUM

PULLMAN PORTER CAP In the 1920s the Pullman Company was the nation's largest employer of black men. Train porters were relatively well paid and respected in the black community. In 1925 they unionized; the Brotherhood of Sleeping Car Porters became a force in the march toward equality.

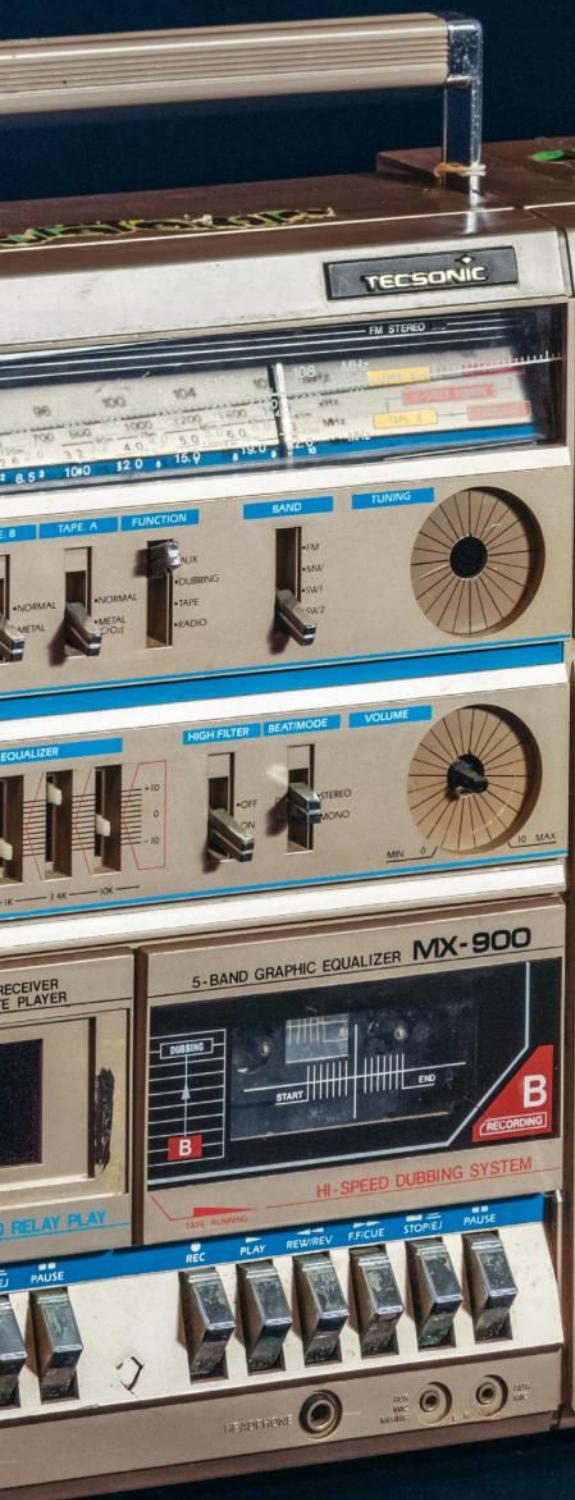
GIFT OF THE DESCENDANTS OF GARFIELD LOGAN



PUBLIC ENEMY'S BOOM BOX Chuck D bought this cassette player in 1987 in New York City before the group released its landmark album, *It Takes a Nation of Millions to Hold Us Back*. Used on tour until the mid-1990s, it returned for a 2010 tour. After that, Chuck D says, "there's only one place it could go."

GIFT OF PUBLIC ENEMY





By Michele Norris

Portraits by Radcliffe Roye

Artifact Photographs by Grant Cornett

If not for a chance encounter with a soldier in fatigues at a Mercedes-Benz dealership, just outside Sacramento, California, Gina McVey might never have known that her grandfather had an esteemed role in American history.

While making small talk in the waiting room, McVey mentioned that her grandfather had served in the First World War. The questions that followed were almost reflexive: "What did he do? Where did he serve?" McVey had few answers.

Lawrence Leslie McVey, Sr., was a faintly drawn branch on the family tree. He'd lived on the other side of the country, in New York City, and died when she was just 10. She'd met him only twice. McVey, a risk consultant for Wells Fargo, did know one detail that was family lore: Her paternal grandfather had received a fancy medal from the French government, but she couldn't recall the name of the honor.

"The look on his face when I mentioned the medal was priceless. He asked if my grandfather was a black man," McVey says. It was a reasonable assumption since she is an African-American woman with chestnut skin and dark eyes.

"That's when he said the name of it," she continues. Croix de Guerre. "I may be saying it all wrong, but he wanted to know if my grandfather had received that specific medal."

McVey recalls what he said next. "Do you know what you have? You have history."

Those words, coming from a man in uniform, felt like a command. Within an hour she was researching World War I's black soldiers on her

computer. Within four weeks she was at her mother's Los Angeles home, combing through a metal box that had been stuffed in a bedroom chest since 1968—the year her grandfather died. And within four months Gina McVey was in Washington, D.C., delivering the contents to curators at the new National Museum of African American History and Culture.

"They were floored by what they saw," McVey says. What they saw was a trove of military medals, commendations, photographs, and newspaper clips that detailed her grandfather's service in the 369th Infantry—an all-black regiment so fierce that it came to be known as the Harlem Hellfighters. Barred from serving in combat alongside white soldiers, the black soldiers were assigned roles as cooks and stevedores, but eventually redeployed to replenish depleted French





IRON SHACKLES Sized for children, this type of restraint was typically made in Africa and used on the passage to America. Two small slaves would have been hobbled together to make it difficult to walk.

forces. Their heroism, now little remembered, was once known around the world.

"I never learned any of this in school," McVey says. "It's been sitting there waiting for someone to say, 'This is important. We need to share it.'"

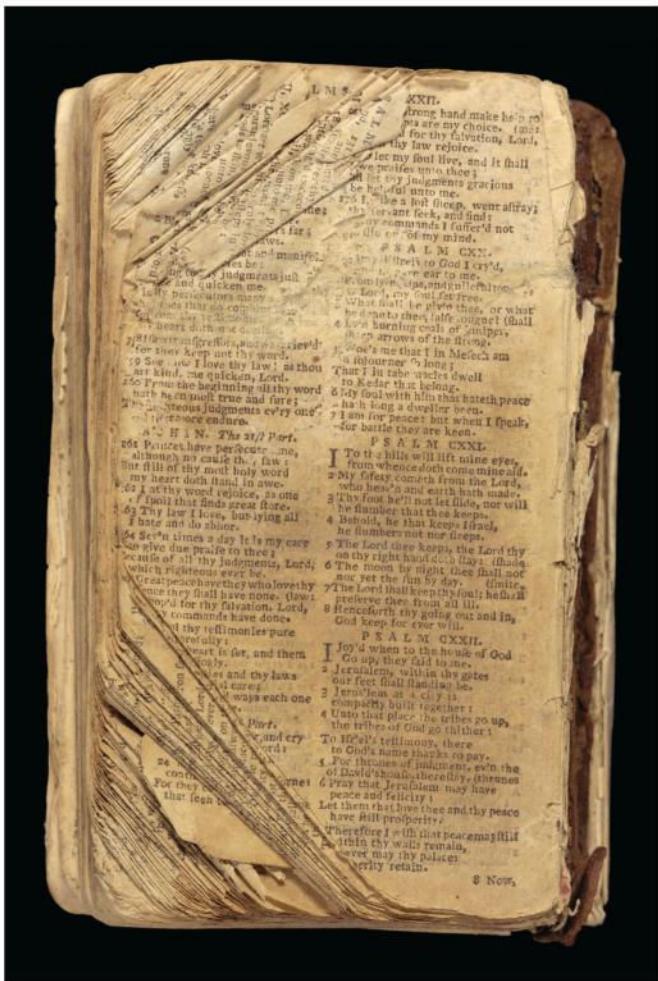
THE SMITHSONIAN INSTITUTION'S museums are where the world comes to learn what it means to be American. This September the newest museum joins that pantheon with a distinct mission: to reframe American history through an African-American lens. It is, says Lonnie Bunch, the founding director, "a clarion call to remember."

Whether it's the hymnal carried by abolitionist

Harriet Tubman, the Cadillac driven by rock-and-roll legend Chuck Berry, the inkwell used by writer James Baldwin, the dress sewn by civil rights icon Rosa Parks, the Jim Crow-era segregated railroad car, or the guard tower from Louisiana's notorious prison in Angola, each object in the museum will highlight a chapter in a historical narrative that includes bondage, oppression, liberty, and perseverance.

Visitors—expected to top five million a year—will also be able to see Lawrence Leslie McVey's Croix de Guerre and learn about the valor of the 369th, as well as the prejudice that was U.S. Army policy. That ugly truth was clearly spelled

A country that refused to offer respect or basic humanity to African Americans is honoring black history in an extraordinary way.



NAT TURNER'S BIBLE This sacred book belonged to the leader of a brutal slave rebellion and was confiscated in 1831, when he was captured. Turner, a preacher who always had a Bible on him, and his band of slaves killed at least 55 white people in southern Virginia. Maurice Person, shown with a photo of his grandparents, inherited the Bible from his father. He is descended from Lavinia Francis, who had been hidden by slaves during the uprising. Bruce Turner, near a house that his ancestor ransacked, is eager for visitors to the museum to learn about the revolt.



A Hundred Years in the Making

Prominent African Americans had pressed for a national monument to celebrate black achievements, but politics, questions about how to pay for it, and debates over where to put it caused decades of delays. Now, with a new museum on the National Mall, a dream has been realized.

out in a secret 1918 military memo explaining that “although a citizen of the United States, the black man is regarded by the white American as an inferior being.” The memo advised French officers to avoid eating or shaking hands with black soldiers or even praising them, to keep “from ‘spoiling’ the Negroes.”

In some ways the new museum is a cultural measuring stick. A country that refused to offer respect or even basic humanity to African Americans is honoring black history in an extraordinary way. Everything about the new museum is bold—the mission, the collection, the \$540 million building inspired by ancient African art and principally designed by David Adjaye, a British architect born in Tanzania to Ghanaian parents.

To say the museum stands out is an understatement. It sits on prime real estate, steps from the White House and across the street from the rolling green that surrounds the Washington Monument. The building is faced with a deep brown metal latticework similar to the intricate designs that African-American metalsmiths crafted for the ornate gates and balconies of New Orleans. Bunch explains: “I wanted a building that spoke of resiliency, uplift, spirituality, but I wanted a building that had a dark presence.”

It is also angular and aesthetically aggressive, an homage to the wonderfully flamboyant style African Americans often assert to convey confidence and cultural urgency. Church hats. Zoot suits. Cornrows. Bling. Situated at the gateway to the rows of stately Smithsonian buildings on either side of the National Mall, it’s as if Beyoncé, in one of her bejeweled costumes, strutted into a Wall Street meeting filled with gray suits.



Black soldiers formed the 55th Massachusetts Infantry Regiment in 1863.

I pass the building often, and I feel a little emotional jolt every time. The first time I took a tour, I saw something that put words to what I felt so viscerally. Everything about the building screams, “I, too, am America.”

Those words, in huge bronze letters on the wall in one of the museum’s exhibit spaces, are the final line from the poem Langston Hughes titled simply, “I, Too.” Written while Hughes was in Europe and denied passage on a ship home because of his race, the poem speaks of “the darker brother” forced to eat in the kitchen, who nonetheless eats well and grows strong with the certainty that one day he will be “at the table when company comes.”

“Besides,” Hughes writes, “They’ll see how beautiful I am. And be ashamed.”

AT THEIR BEST, museums help us understand and interpret our complex world by illuminating history and influencing attitudes. That becomes a challenge when we must examine our darkest episodes. Any society scarred by war, genocide, famine, displacement, or slavery must decide what to remember and how to remember. Individual memory is one thing, but collective memory stretches across generations and helps define a nation’s character.

Museums play a critical role in constructing collective memory—in this case turning the country’s gaze toward a history it might otherwise choose to forget. Slavery, sanctioned by law in America for more than two centuries, has shaped almost every aspect of American life, and yet it doesn’t hold a place of primacy in America’s historical canon. From slavery to segregation

1915	The Committee of Colored Citizens forms to assist black veterans visiting Washington to celebrate the 50th anniversary of the Civil War. Its mission later expands to create a permanent commemoration in the capital—"a beautiful building suitable to depict the Negro's contribution to America."	1929	President Herbert Hoover appoints black leaders to plan a "National Memorial Building," but no money is ever appropriated.	1968	Jackie Robinson, who broke baseball's color line, and writer James Baldwin ask Congress for a "commission on Negro history and culture."	1986	Tom Mack, a black Washington tour bus operator, launches a campaign for a museum on the mall.
1967	The Smithsonian opens a museum of black history and culture in Anacostia, a storied African-American community in Washington.	1981	Congress authorizes the National Afro-American Museum in Ohio, which runs without federal funds.	1988	Congressman and civil rights leader John Lewis introduces a bill for a museum. He does so every legislative session until it finally passes in 2003.		

to soaring victories, this new museum takes an unflinching look at the travails and triumphs of African Americans.

Discoveries like Gina McVey's are a particular thrill to the museum's curators. They began their work a decade ago believing that many of the artifacts, documents, and treasures that would reveal the story of African Americans were secreted in basements, attics, garages, and storage trunks. Items with high monetary value might be in the hands of collectors, but the curators had a hunch that many with great significance were still undiscovered, because many museums have overlooked black history.

But there was another realization that led curators to believe so much black history was still buried. Black families in many cases have been unwilling to excavate their own past because it is soaked through with so much pain. African Americans are still joined at family tables by those old enough to have lived through a period of second-class citizenship, when laws dictated where they could eat, live, work, or educate their children. And yet many who survived the dehumanizing and degrading system of segregation decided that the best way to move forward was to avoid dwelling on the past. Their focus was fixed forward. Onward. Upward.

In my own childhood, my father and his five brothers would talk all the time about "traveling light." When someone asked, "How're you doing?" the answer was, "Traveling light." I was well into adulthood before I realized they weren't talking about the kind of baggage that has handles. They were from Birmingham, Alabama, and they all had moved north, looking

for a better life and a place where their children might take flight.

To move skyward, certain things were simply locked away. Besides the Croix de Guerre, the metal box of military keepsakes that McVey found included her grandfather's Purple Heart, a sharpshooter medal, a thank-you letter from the French government, and photos of her grandfather in the uniform of the U.S. Army. "On one of the pictures my grandmother wrote at the top, 'hero.' That just touched my heart," she says. "I just knew he won a medal. I just sat there and cried."

How does a family forget all that?

The Harlem Hellfighters returned to a hero's welcome in New York City, showered with cigarettes, chocolate, and coins that jingled off their steel helmets. But when the parade was over, the soldiers were back in a country that did not see them as equals. In 1919, the year they returned, hundreds of African Americans were killed by white mobs across the country as racial tensions erupted in what was called the Red Summer.

"The more I learned about not just my grandfather's service but the world he walked back into, the more I understood why this whole history just got lost," McVey says. "It was hard. Too hard."

TO REX ELLIS, the museum's associate director for curatorial affairs, the charge is to tell the whole story, "not a part of the story, not the portion that some people are most comfortable with." This mission is not without controversy, as Ellis learned when he uncovered the history hidden in plain view in his hometown.

1990
To develop a plan, the Smithsonian sets up the National African-American Museum Project.

1994
Senator Jesse Helms kills Lewis's bill: "Every other minority will give thought to asking the taxpayers to pony up for a special museum for them."

2001
Congressman J.C. Watts, Jr., and Senator Sam Brownback, both Republicans, join Lewis, a Democrat, to help push the legislation. Watts, an African American, had worked with Lewis before. Brownback says the idea to support a museum came to him in church as "divine intervention."

2003
President George W. Bush signs legislation to establish the museum.

2006
A site near the Washington Monument is selected.

2008
The museum begins collecting "African-American treasures" across the U.S.

2012
At the groundbreaking President Barack Obama says the museum "should stand as proof that the most important things in life rarely come quickly."

2016
The National Museum of African American History and Culture moves into its striking new building.

Ellis grew up in Williamsburg, a former capital of Virginia. Colonial Williamsburg, the sprawling living history museum where actors wear period costume, is the center of modern-day civic life for the city's residents. Yet when Ellis was a boy, he was never allowed to visit. One day he asked his father why, and the elder Ellis shot back: "Because that's something that points to slavery, and that's something we don't need to know about."

More than a decade later, Ellis was teaching theater history at Hampton University in Virginia when a representative from Colonial Williamsburg visited the campus looking for actors to play the parts of slaves. Telling the story, Ellis rolls his eyes. "You don't go to a predominantly black college and make a statement like that unless your cause is just or you're 'touched,' as my grandmother used to say," he explains. "He said he wanted to begin talking about the other half of the population in Williamsburg during the 18th century, and he wanted us to help him do that."

That surprised Ellis, who didn't know that half the population had been black. He developed what came to be called the Other Half Tour—a two-hour trek through the site viewing life from the perspective of slaves.

Black people had always worked in costume at Williamsburg, as blacksmiths, scullery maids, bookbinders, and carpenters, but they were silent. Ellis introduced a new paradigm: Slave interpreters would describe in scholarly detail how they worked, lived, found fleeting dignity in private rituals, and endured a life of bondage and brutality. Ellis is a trained actor with a voice like cognac and a way of using his whole body to

punctuate words, much like a conductor in front of a symphony. So he was able to poignantly portray a slave who would face severe punishment for attempting to learn the alphabet—and then break character to stand erect and deliver a rousing history lesson. It was a hit with tourists, but it made Ellis a pariah in Williamsburg's black community.

"It was very, very, very controversial," says Ellis. "Those first two or three years were very, very difficult years. I mean, when you have black employees who come to see what you're doing, and they turn around and walk away, and you have people walking up to you and, when they see you in costume and they see you talking, they start whistling 'Dixie,' it can get hurtful."

His father never came to see his work as a slave interpreter. "In the end I think he understood that I was not just giving us back our history, I was giving people back the dignity they deserve in their history. The dignity," he says, repeating the word for emphasis. His father did not live to see the museum, but Ellis keeps him in mind when thinking about its goals. "You have to convince some people of the importance of this work. It helps me understand that we have to work hard and work carefully to bring people along."

16TH STREET BAPTIST CHURCH SHARDS Civil rights activist Joan Mulholland found the shattered glass in a street gutter after white supremacists bombed the Birmingham, Alabama, sanctuary in 1963, killing four black girls. For years Mulholland kept a piece of the stained glass in her coin purse as a reminder of the tragedy and the need for courage in the face of hate.

GIFT FROM THE TRUMPAUER-MULHOLLAND COLLECTION



**Curators have spent
the past decade
making the case
that examining the
black experience is
key to understanding
America.**



CARL LEWIS'S OLYMPIC MEDALS The track-and-field star (right) donated nine of his 10 medals, all but the one buried with his father, William Lewis. They were in storage when Lewis learned about the new museum. Lewis also donated uniforms, shoes, and other memorabilia. "I think if a little kid just walked up and saw that medal," he says, "it'd inspire him."

GIFT OF CARL LEWIS





CHUCK BERRY'S GUITAR The groundbreaking musician used this Gibson ES-350T, which he named "Maybellene," early in his career to inaugurate his intricate, rapid-fire style. Curator Kevin Strait said the legend, then 85, played a few licks before handing "her" over in 2011.

GIFT OF CHARLES E. BERRY

JOSEPH TRAMMELL'S FREEDOM PAPERS In the slavery era, free African Americans carried proof of their status. Trammell made this tin box for his papers. The document, issued in 1852, describes the 21-year-old as a "free man of dark complexion," with scars on his forehead and left arm.

GIFT OF ELAINE E. THOMPSON



The museum wanted artifacts that represented historic milestones but would reveal those stories in a personal way.

THE MUSEUM'S CULTURALLY diverse team of curators has spent the past decade making the case that examining the black experience is key to understanding America. It's a high-stakes approach, particularly within the Smithsonian's conflict-averse culture.

In 1995 the National Museum of American History installed an exhibit featuring a section of a Woolworth's lunch counter from Greensboro, North Carolina, where four black students in 1960 protested whites-only service by launching a sit-in that spread nationwide. Some vocal North Carolinians feared that it would create a black eye for Greensboro on the National Mall. Woolworth officials worried it could hurt their brand. Some African Americans objected that it was Disneyesque, emphasizing the nobility of the students rather than the racism they were fighting. All that conflict about a single exhibit. Now imagine a collection of nearly 40,000 objects.

The exhibits have a strong point of view but are based on rigorous scholarship. And even though the museum speaks primarily with a black voice, the approach is meant to draw in visitors of all backgrounds. The experience begins underground—a bit of choreography that evokes the National Association of Colored Women's motto, "Lifting as We Climb." Visitors learn about a new nation struggling to establish the rule of law and wrestling with the "paradox of liberty." Nowhere does it explicitly say slavery was an abomination or segregation was evil, but through carefully designed exhibitions, visitors are encouraged to examine political, economic, or moral issues from a very personal vantage. The idea is that learning about a slave shackle might prompt a visitor to contemplate what it would be like to wear the iron cuffs or

clamp them on someone else's ankles.

"You will see yourself in this exhibit, regardless of your race," says Mary Elliott, who helped create the Slavery and Freedom exhibition, which presents the contradiction personified by the nation's third president: the framer of the Declaration of Independence and a slaveholder. "We humanize this story, so if you are a man, if you are a woman, if you are a child, you look at Thomas Jefferson and say: What would I do? How would I have justified it?"

Some who donated artifacts say that was part of the attraction. For the musician Chuck D, emcee of the politically confrontational rap group Public Enemy, the museum is in keeping with his group's 1989 number one single, "Fight the Power," in which he laments that "most of my heroes don't appear on no stamps."

"First, the fact that they wanted to include hip-hop and rap in the history of African Americans in America was impressive," says Chuck D, whose real name is Carlton Douglas Ridenhour. "Add to that they wanted to confront America, to ask America to confront itself, and look at all of its people and all of its history. That's power."

Chuck D and his bandmates gave the museum a boom box used in their 2010 tour that's so large it could serve as a coffee table.

For Olympic medalist Carl Lewis, the appeal of the museum is that it offers a kind of immortality for his accomplishments and his story. Lewis idolizes the track star Jesse Owens, who won four gold medals at the 1936 Olympics, but marvels at how many young people don't know Owens's story. Lewis said part of his motivation was to make sure people remember not just his medals but also the story behind them. Nine of his 10 medals are at the Smithsonian—all but the

one he placed in his father's casket. "I'll just be honest," Lewis says. "You know it's just weird that in maybe a hundred years it's still going to be there. I'm going to be part of American history. I mean, that's my selfish part. It's really that this little goofy kid from Willingboro, New Jersey, that people laughed at, is in the Smithsonian."

Even objects that represent triumph have the contextual backdrop of overcoming daunting barriers. Take, for example, Chuck Berry's 1973 convertible Cadillac Eldorado. It is a stunner of a car. Lipstick red with whitewall wheels and a hood ornament that gleams like a chandelier. Even as it screams of self-determination, there's a backstory of denigration. During filming for the documentary *Chuck Berry: Hail! Hail! Rock 'n' Roll*, Berry, who was about to turn 60, drove that car across the stage of the Fox Theatre in St. Louis—the same theater that had refused him entry when he was a boy. In the museum Berry will be remembered as a pioneering guitarist whose music appealed to black and white teenagers, setting the sonic template for future legends, including Keith Richards, Pete Townshend, and Dave Grohl.

FROM THE OUTSET the goal was to create a new collection rather than poach what little other museums had. The museum's temporary offices were filled with whiteboards and yellow sheets listing people, milestones, events, and themes: abolition, the Civil War, dance, sports, black newspapers, transportation, incarceration, protest movements, business districts, agriculture, maritime work, hair, comedy, family life.

The curators wanted artifacts that represented historic milestones but would reveal those stories in a personal way. Ordinary items to tell extraordinary stories. They found a great many. Marian Anderson's outfit with the flame orange jacket, which she chose for her performance at the Lincoln Memorial in 1939, after she had been barred by the Daughters of the American Revolution from singing at Constitution Hall because she was black. A slim handmade tin box that protected the freedom papers carried by Joseph Trammell, a former slave emancipated

in the 1850s. Shards of stained glass found by civil rights activist Joan Mulholland in the gutter outside the 16th Street Baptist Church in Birmingham, Alabama, after it was bombed in 1963 by white supremacists. A racket used by tennis champion Althea Gibson, who in the early 1950s was the first African American to compete in the U.S. Nationals and Wimbledon. Tiny shackles made to be worn by a slave child.

The curators say their job will never be done. They continue to collect items attached to history as it happens, from the 2014 protests in Ferguson, Missouri, after a white police officer killed an unarmed black man, to the eventual end of President Barack Obama's two terms.

One of the most extraordinary ordinary items has a direct link to the dark chapter when blacks were bought and sold as property. It also is a reminder of how enslaved blacks desperately clung to the hope for freedom.

Rex Ellis remembers the day he was walking down a hall and overheard a colleague casually mention that a persistent woman kept calling to say she had Nat Turner's Bible. Ellis stopped so quickly he spilled the soft drink in his hand. "Give me the number," he said. He called her immediately but was leery. The curators were getting used to dead ends and people looking for a payday or instant attention.

The swampy stretch of Southampton County, Virginia, where Turner led a bloody slave revolt in 1831 was a short drive from where Ellis grew up. He had heard rumors about Turner memorabilia handed down among white families. A hat. A sword. A coin purse allegedly made from Turner's skin after he was hanged.

The Bible, if it truly existed, would be central to Nat Turner history. Turner had been a widely sought after preacher and a deeply religious man who believed he had visions and received signs from God. He had taught himself to read and carried a Bible when he delivered sermons or baptized enslaved men and women. He may have carried it as his slave posse went from plantation to plantation, freeing slaves and killing at least 55 white people, including women and children.

Placing any object within the walls of the Smithsonian amplifies its significance. It is a cultural imprimatur, a way of saying: This matters.



JAMES BALDWIN'S INKWELL

The writer kept this brass-topped glass vial on his mantle in St.-Paul-de-Vence, France. He is pictured above with his sister Paula on a trip to a penny arcade. His niece, Aisha Karefa-Smart, who is also an author, says Baldwin was a father figure to his siblings. Karefa-Smart grew up with Baldwin's artifacts and awards in her home: "We never thought of them as pieces that other people would be interested in or that a museum would be interested in."

GIFT OF THE BALDWIN FAMILY





CROIX DE GUERRE During World War I the French government awarded this military honor to the black soldiers of the 369th Infantry—a unit so courageous that it came to be known as the Harlem Hellfighters. This medal, belonging to Lawrence Leslie McVey, was tucked away in a metal box until 2010, when his granddaughter Gina McVey rediscovered it.

GIFT OF GINA R. MCVEY

The persistent caller was Wendy Creekmore Porter, an adjunct women's studies professor at Old Dominion University in Norfolk, Virginia. The Bible belonged to her stepfather, Maurice Person, a great-grandson of Lavinia Francis, who survived the raid when the family's slaves hid her from Turner's band.

Ellis overheard that conversation just as Porter was growing tired of "pestering." "I was starting to think they were not interested," she says.

When Ellis arrived at Porter's home in Virginia Beach, the Bible was sitting on the dining room table, wrapped in an old dishcloth. Missing both its covers, with fragile, dog-eared pages, it was about the size of a dime novel. "It was so small," Ellis says, "and that's when I knew this could be real because Nat Turner kept his Bible close to his person, in a pocket."

The Bible has made an incredible journey. It sat in a courthouse evidence drawer for more than 80 years until 1912, when it was given to Lavinia Francis's grandson, Person's father. It spent decades displayed on a family piano. Eventually it was wrapped in the dishcloth and tucked in a closet and later placed in a safe-deposit box. Porter carried the Bible to a fifth-grade classroom for show-and-tell and, in 2009, to PBS's *Antiques Roadshow* in Raleigh, North Carolina, where experts were unimpressed.

"It didn't deserve to be in the house. It deserved to be in a much greater space to tell the story," Porter says. "A place where people can see it. A place to heal."

Nat Turner's great-great-great-grandson, Bruce Turner, believes the Bible's travels have ended in the right place. "The more people can see the Bible," he says, "the more the Nat Turner story would be spread out."

PLACING ANY OBJECT within the walls of the Smithsonian amplifies its significance. It is a cultural imprimatur, a way of saying: This matters. It is fitting that the National Museum of African American History and Culture is opening when the phrase "Black Lives Matter" has burst into the American lexicon. The essence of the museum's mission is to help all visitors who walk through its doors understand that black lives and black history do matter.

It's a message meant for all of us, particularly those who don't know their own history. Five decades passed before Gina McVey learned about her grandfather's military service. When he died in 1968, he was found alone on a park bench in New York City. He had been beaten. Now millions will learn about the heroic role he had in American history.

The African-American story has been treated as an afterthought, an asterisk, relegated to one month a year—and the shortest month at that. But as the nation continues to debate its core values, this history has potent lessons to teach us.

Bunch, the museum's director, has been making this case since he first joined the Smithsonian in 1978. "If one wants to understand the notion of American resilience, optimism, or spirituality, where better than the black experience? If one wants to understand the impact and tensions that accompany the changing demographics of our cities, where better than the literature and music of the African-American community?" he says. "African-American culture has the power and complexity needed to illuminate all the dark corners of American life, and the power to illuminate all the possibility and ambiguities of American life."

There is nothing about the new museum that suggests an afterthought. The asterisk has become an exclamation point. □



STEPHEN VOSS

Michele Norris hosted NPR's *All Things Considered* for more than a decade. She is founding director of the Race Card Project and author of *The Grace of Silence*, a memoir examining hidden racial legacies.

Snow Monkeys

Story and Photographs by

JASPER DOEST

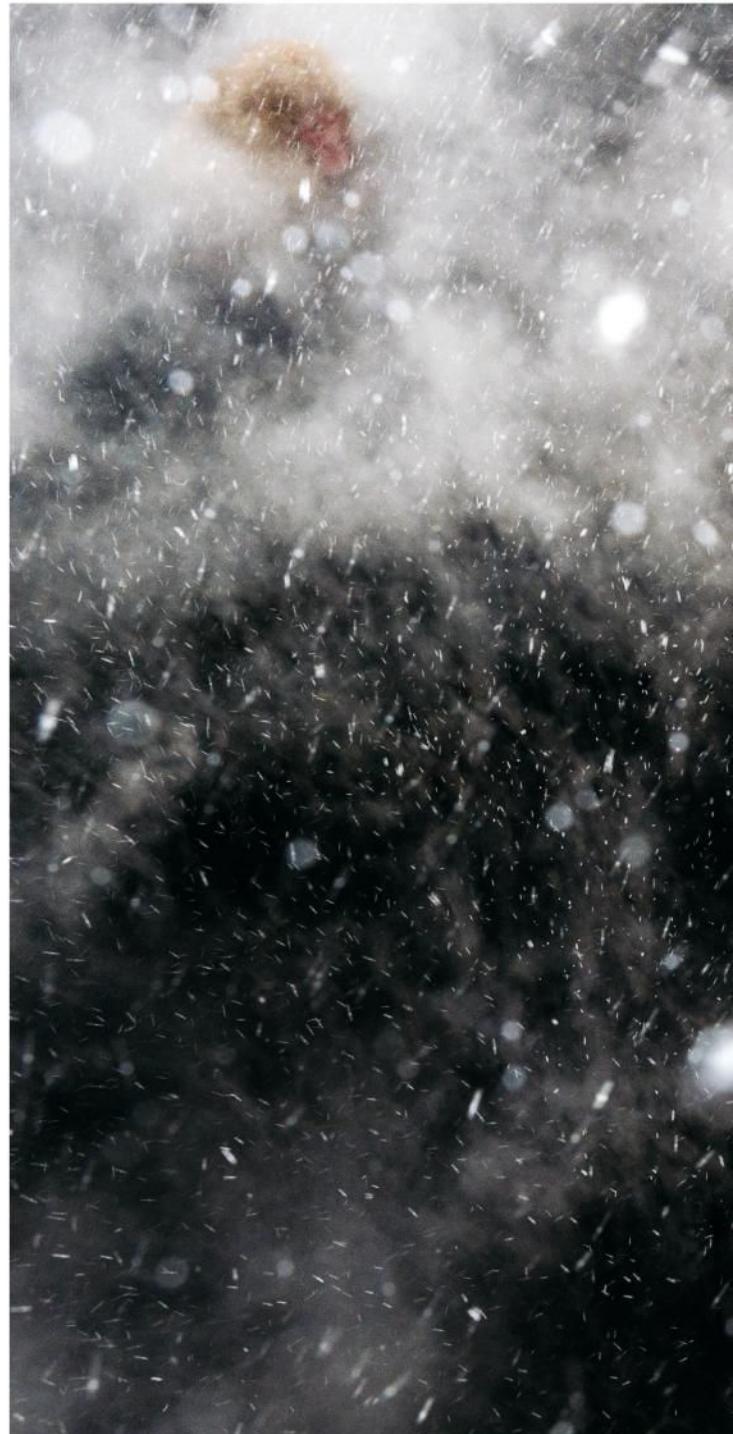
It's easy to find head shots of Japanese macaques soaking in an alpine hot spring. But I wanted to show these famous "snow monkeys" in a different light—to capture the traits and personalities of the individuals. In doing so, I also hoped to get people to think about the species' place in culture and conservation.

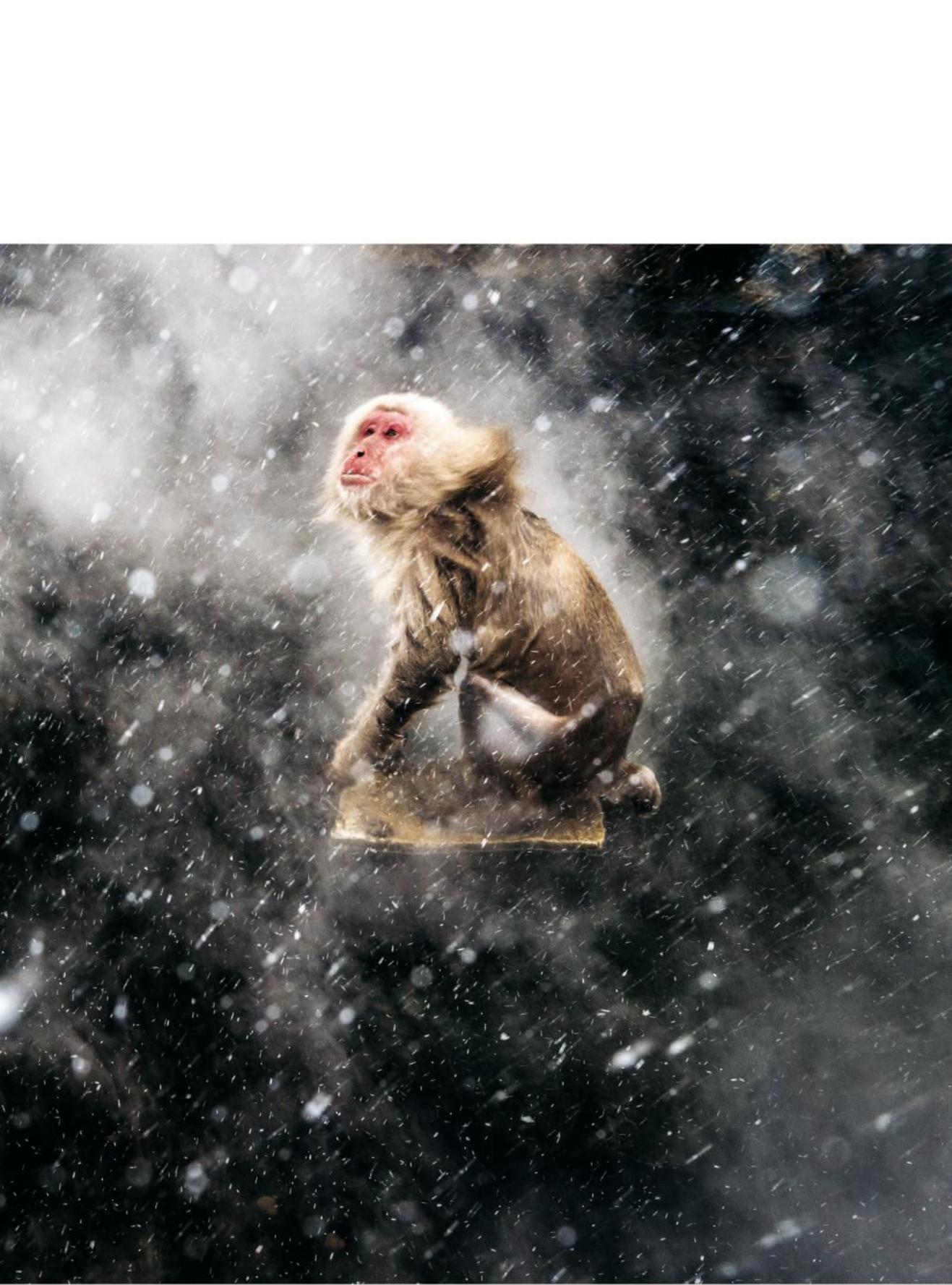
Japanese macaques live farther north than any other nonhuman primate. The first time I visited Jigokudani Yaen-koen (aka Wild Snow Monkey Park), in 2007, I was struck by how like us they are. Their expressions and behaviors are easy to relate to. In fact, they're a lot like what I see when I look in the mirror, or at my daughters.

I've since gone back eight times, totaling about two and a half months. I learned that in the 1960s, the macaques here started bathing in one of the hot springs, or *onsens*. But this created an unhygienic situation for human bathers, so a separate pool was built for the macaques.

Today a group of around 160 monkeys soaks there. The spot is now a

During a blizzard in Joshin'etsukogen National Park, on the island of Honshu, a Japanese macaque shakes off snow and water drops while resting on a rock that's poking out of a hot spring.







Japanese macaques take a hot bath during winter in Jigokudani. The air temperature here is below freezing, but the water is well over 100 degrees Fahrenheit. Relaxed by the steamy warmth of the water, the monkeys often fall asleep while bathing.





Two young snow monkeys huddle close together, trying to keep warm during the winter cold. These intelligent, highly social animals live on three of Japan's four main islands.

major tourist attraction, and a business anchor for the local community. Busloads of visitors, from all over the world, buy tickets to see the monkeys, which are fed by park officials. It's not a zoo—the macaques are still wild animals—but with so many visitors it almost feels like one.

As I've come to know these macaques over the years, I've become protective of them. Like any nature photographer, I want to create portraits that do justice to my subjects and let their personalities shine through. But I also want people to consider the welfare of these monkeys—and the effects that tourism may be having on them. □



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NGM MAPS



A macaque stretches out its foot, trying to grab food that's been thrown in the water by park staff. Different monkeys have different strategies. Some dive for their food and swim underwater; others, like this one, use their feet to grasp food that's fallen to the bottom.



A close-up photograph of a Japanese macaque monkey sitting in a hot spring. The monkey's head and shoulders are visible, with its face partially submerged in the water. It has a dark brown or black coat with a lighter, tan-colored patch on its forehead. The background is a dark, heavy snowfall, creating a sense of cold contrast to the warm water. The overall lighting is dim, emphasizing the texture of the snow and the monkey's fur.

Japanese macaques bathe together
in the park, half a mile above sea level.
High-altitude habitats like this one
can be harsh, receiving several feet of
snow in winter. The warm waters here
seem to protect and soothe many of
these monkeys.

In the Loupe

With Bill Bonner, National Geographic Archivist



A Sobering Race

In 1929 Prohibition loomed large over local elections around the United States, including at this county courthouse in Barbourville, Kentucky. Republican sheriff candidate B. P. Walker pledged that he was both sober and qualified (see political poster, inset), but his bid was disqualified on corruption charges.

Jennie Walker, however, was a different story. B. P.'s wife, a Democrat, would soon become one of Kentucky's first elected female sheriffs. Though Jennie never carried a gun, daughter Doris Broach said in a 1982 interview that as Knox County sheriff, her mom certainly "arrested people when necessary."

National Prohibition was repealed in 1933, but Barbourville remained dry during Walker's term and beyond. The town's change of heart—a vote of 498 to 433 to allow alcohol sales—occurred just this past December. —Eve Conant

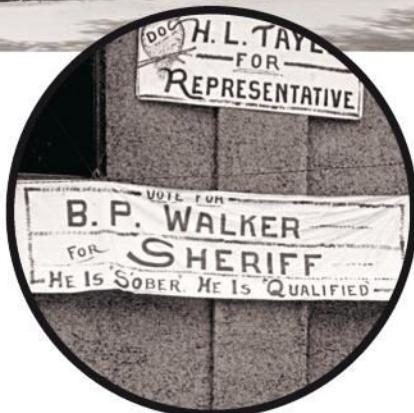


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